

The compensation for victims of disasters in Belgium, France, Germany, and the Netherlands

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THE COMPENSATION FOR VICTIMS OF DISASTERS IN BELGIUM, FRANCE, GERMANY, AND THE NETHERLANDS*

Véronique Bruggeman & Michael Faure***

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LIST OF ABBREVIATIONS

ACM	Autoriteit Consument en Markt (Netherlands Competition Authority)
AMINAL	Administration for Environment, Nature, Land and Water Management (Flemish Region in Belgium)
Art.	Article
AtG	Atomgesetz (Germany) (Nuclear Energy Act)
CCR	Caisse Centrale de Réassurance (France) (Central Reinsurance Fund)
CFA	Commissie Financiële Afwikkeling Vuurwerkrap (Commission for the Financial Compensation of Victims of the Fireworks Disaster)
CSC	Convention on Supplementary Compensation for Nuclear Damage
CTRC	Commissie Tegemoetkoming bij Rampen en Calamiteiten (Commission for Compensation in cases of catastrophes and incidents)
EDF	Electricité de France (electricity company in France)
FFSA	Fédération Française de l'Assurance (French Federation of Insurance Corporations)
FGTI	Fonds de garantie des victimes des actes de terrorisme et d'autres infractions (Compensation Funds for Victims of Terrorism and Other Crimes)
GAREAT	Gestion de l'Assurance et de la Réassurance des Risques Attentats et Actes de Terrorisme (Reinsurance Pool for Terrorism Risks)
GEMA	Groupement des Entreprises Mutuelles d'Assurances (French Grouping of the Mutual Insurance Companies)
GenTG	Gentechnikgesetz (Germany) (Law on Genetically Modified Organisms)

GNP	Gross National Product
IAEA	International Atomic Energy Agency
IPCC	Intergovernmental Panel on Climate Change
LuftVG	Luftverkehrsgesetz (Germany) (Law on Air Traffic)
NBC	Nuclear, Biological or Chemical
NEA	Nuclear Energy Agency
NHT	Nederlandse Herverzekeringsmaatschappij voor Terrorismeschade (Netherlands reinsurance company for terrorism risk)
NRF	Stichting Nationaal Rampenfonds (National Compensation Funds for Disasters)
OECD	Organisation for Economic Cooperation and Development
SDRs	Special Drawing Rights
StVG	Strassenverkehrsgesetz (Germany) (Traffic Code)
TRIP	Terrorism Reinsurance and Insurance Pool (Belgium)
UmweltHG	Umwelthaftungsgesetz (Germany) (Environmental Liability Act)
USD	United States Dollar
WRR	Wetenschappelijke Raad voor het Regeringsbeleid (Netherlands Scientific Council for Government Policy)
WTS	Wet Tegemoetkoming Schade bij Rampen en Zware Ongevallen (Law for the Compensation of Damage in the Event of Catastrophes and Large Accidents)

I. INTRODUCTION

In the recent decade a lot of attention has been paid to the way in which victims of a variety of disasters would be financially compensated. Many legislators have been active by creating specific compensation mechanisms – although, in some countries, the compensation is not based on a structural statutory framework, but will rather be provided *ad hoc* if politicians consider the particular disaster to deserve *ex post* compensation. Various studies have also shown remarkable differences with respect to the financial compensation of victims of disasters, even between European countries.¹ Notwithstanding the existence of a

¹ See, e.g., FINANCIAL COMPENSATION FOR VICTIMS OF CATASTROPHES: A COMPARATIVE LEGAL APPROACH (Michael G. Faure & Ton Hartlief eds., 2006); VÉRONIQUE BRUGGEMAN, COMPENSATING CATASTROPHE VICTIMS: A COMPARATIVE LAW AND ECONOMICS APPROACH (2010).

European Solidarity Fund, differences between the European Member States remain large with respect to victim compensation mechanisms because of the lack of harmonisation in the area.²

Various streams of literature stress the importance of adequate financial compensation to victims of disasters. Some have pointed at the fact that disasters can have a largely disruptive effect on societies. Providing adequate financial compensation to victims is therefore considered an important condition for restoring societal stability after a disaster. Other literature, such as literature which adopts the economic approach to law, points at the relationship between ex post compensation and ex ante prevention. That literature stresses the fact that particular ex post compensation mechanisms, more particularly ad hoc compensation provided by the government, may have negative effects on the ex ante incentives of victims to invest in prevention.³ A careful institutional design of the ex post compensation mechanisms is therefore not only of importance to restore social stability after a disaster, but also to bolster disaster risk reduction.⁴

It is against this background that we will comparatively analyze financial compensation mechanisms in four countries. From the outset, it should be made clear that disasters can lead to pecuniary losses (like income loss, property loss etc.) and non-pecuniary losses. Additionally, remedies may either be of a financial nature (e.g. financial compensation) or of a non-monetary nature (e.g. restoration in-kind, excuses, or other types of relief). For reasons of simplicity in this study we do not distinguish between different heads of damages, and we merely focus on financial compensation for victims of catastrophes.⁵

The Netherlands is used as a point of reference because various studies have shown that the country's financial

² A Green Paper on the Insurance of Natural and Man-Made Disasters was published by the European Union in 2013, asking the question whether or not action at EU level could be appropriate or warranted to improve the market for disaster insurance in the European Union. *See Green Paper on the Insurance of Natural and Man-made Disasters*, COM (2013) 0213 final (Apr. 16, 2013). A consultation on the Green Paper was launched in the Spring of 2013.

³ *E.g.*, Richard A. Epstein, *Catastrophic Responses to Catastrophic Risks*, 12 J. RISK & UNCERTAINTY 287 (1996); Louis Kaplow, *Incentives and Government Relief for Risk*, 4 J. RISK & UNCERTAINTY 167 (1991).

⁴ *See* Giuseppe Dari-Mattiacci & Michael G. Faure, *The Economics of Disaster Relief*, 37 LAW & POL'Y 180 (2015).

⁵ *See* Faure & Hartlief, *supra* note 1. Where this was equally the case and on which this study builds further.

compensation mechanism reveals a shortage with respect to adequate compensation for disaster victims in comparison to the neighbouring countries: Belgium, France, and Germany.⁶ This Article focuses on Belgium, France, and Germany because of each country's proximity to the Netherlands and differences between each country's legislative initiatives to address financial compensation of disaster victims. With respect to legislative changes, Belgium and France have moved towards a system with a structural focus on financial compensation of disaster victims. Despite debate in Germany, legislative changes have not resulted in a move towards a system with more structural financial compensation.

This Article first provides an overview of the financial compensation regimes in Belgium, France, and Germany and a discussion of the situation in the Netherlands, which is intended to indicate where the compensation in the Netherlands shows a particular gap. This Article will identify whether there is a particular statutory structural solution, thereby distinguishing between insurance-based solutions and others. The discussion of the systems in Belgium, France, and Germany is also used to indicate where the Netherlands could learn from examples abroad, but also to show that in some countries, such as Germany, similar problems as in the Netherlands may arise.

As far as the scope of this study is concerned, this Article will focus on four types of disasters. The first type of disasters are natural disasters (e.g. flooding, hurricanes, earthquakes). Technological or man-made disasters constitute the second type of disasters. For example, an explosion in a chemical factory which causes large-scale damages would be rendered a technological or man-made disaster. The distinction between the two types of disasters is important from a liability standpoint. In contrast to certain natural disasters, a liable injurer can be identified in a technological or man-made disaster which may result in the application of liability rules and liability insurance. However, some literature points at the fact that the boundaries between natural and man-made disasters have become increasingly blurred. After all, some natural events turn into disasters as a result of the intervention of man. From a legal perspective, escalation in the severity of a natural event resulting

⁶ See, e.g., Véronique Bruggeman, Michael G. Faure & Tobias Heldt, *Insurance Against Catastrophe: Government Stimulation of Insurance Markets for Catastrophic Events*, 23 DUKE ENVTL. L. & POL'Y F. 185 (2011); Ton Hartlief & Michael G. Faure, *Vergoeding van schade bij rampen in België en Nederland*, 52 TIJDSCHRIFT VOOR PRIVAATRECHT [TPR] 991 (2015) (Belg.).

from an intervention by man does not necessarily enable the application of liability rules to natural disasters. In fact, the only party who could be subject to liability rules in the case of natural disasters would be the government, and many legal systems still have higher thresholds or immunities for public authority liability. In addition to a general discussion of natural and technological disasters, this Article will briefly focus on two more specific types of disasters: nuclear accidents and terrorism. The focus on the nuclear disasters will be relatively brief as all four countries are signatories to the Convention on third party liability in the field of nuclear energy of 29 July 1960 and related international treaties.⁷ However, the way in which these Conventions have been implemented in the four countries and the amounts of compensation differ. After the occurrence of terrorist attacks on 9/11, the Netherlands, Belgium, France, and Germany created specific arrangements for the insurance of terrorism-related damage in their respective countries. A brief discussion of those mechanisms is equally interesting as these show that relatively high amounts of compensation can be provided through a so-called public-private partnership whereby the government intervenes as reinsurer of last resort via a pool construction.

Of course, in addition to those four specific types of disasters, it is easy to imagine other types of catastrophes with the potential of creating societal disruption, such as large food poisoning outbreaks or cyber security-related risks. However, disasters of the aforementioned type are outside the scope of this Article. This is due to the fact that cyber risks are very peculiar and unique. The main difference between cyber attacks and the man-made disasters discussed in this Article is that cyber attacks lack catastrophic losses with respect to the amount of personal injury stemming from such attack. Moreover, the way in which one could deal with financial losses due to cyber security would also require a separate treatment. Cyber attacks are on the one hand man-made; and on the other hand (and in that sense they resemble terrorism) the detection rate is very low as a result of which the mechanisms proposed here to address man-made disasters cannot automatically be transposed to the case of cyber security. In that sense the losses resulting from cyber attacks are

⁷ The Convention on Third Party Liability in the Field of Nuclear Energy, July 29, 1960, 956 U.N.T.S. 251 [hereinafter Paris Convention] constitutes a framework for the financial compensation for victims of nuclear accidents. The Paris Convention was amended by the Additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982.

to some extent more comparable to losses resulting from natural catastrophes. However, the possibilities for potential victims to take preventive measures with respect to cyber attacks are much more pronounced than with losses resulting from natural disasters. Moreover, the primary demand in cases of cyber attacks is often increased cyber security. A cyber attack does not always necessarily lead to a demand for compensation of specific financial losses. There have been steps towards the application of some of the instruments discussed in this Article, such as cyber insurance and risk-sharing agreements, to the case of cyber security as well.⁸ Due to the idiosyncrasies of particularities of cyber security, an examination into cyber attacks deserves separate treatment. As a result, the concluding chapter (VII) of this Article indicates the possible expansion of this study to the case of cyber security as one possible avenue for future research.

As far as the method for this Article is concerned, this analysis builds on comparative research⁹ from 2006 in which the financial compensation for victims of catastrophes was sketched from a comparative legal perspective. That study equally discussed the four countries central to this study. However, that study is more than ten years old, and several evolutions have taken place in the countries under discussion that need to be taken into account. The four countries under review in this Article have also been analyzed in the earlier (2006) study. To some extent, and in order to provide a consistent picture of the situation in the particular legal system, a summary will be provided of the results of the 2006 study. However, to the extent that important changes took place, an update will be provided. The update will not only concern new evolutions in legislation or policy, but also the application of specific policy tools to new disasters. This Article is also based on other research executed in this domain. The research will also build further on the doctoral dissertation by Véronique Bruggeman from 2010.¹⁰ Bruggeman equally addresses France and Belgium, and that can undoubtedly be a useful starting point. More recently, Faure and Hartlief have compared the financial compensation for victims of catastrophes in Belgium and the Netherlands, and Faure has analyzed the liability and compensation mechanisms as tools to reduce disaster risks.¹¹ All those studies will be a point of reference and starting

⁸ See Michael G. Faure & Bernold Nieuwesteeg, *Law and Economics of Cyber Security Risk Pooling*, 14(3) N.Y.U. J.L. & BUS. 923-963 (2018).

⁹ Faure & Hartlief, *supra* note 1.

¹⁰ BRUGGEMAN, *supra* note 1.

¹¹ See Hartlief & Faure, *supra* note 6; see also M.G. Faure, *In the*

point for the current study.

Two approaches will be leading as methods for this Article. On the one hand, the economic approach to law will be employed. In literature utilizing the economic approach to law, emphasis has been placed on compensation for victims of catastrophes and the effects of various ex post compensation mechanisms on ex ante incentives for disaster risk reduction.¹² Literature utilizing law and economics provides the advantage of viewing the subject with an effectiveness analysis. The method can be employed to analyze the extent to which a particular goal, such as adequate¹³ financial compensation of victims and/or ex ante disaster risk reduction, can be achieved through a specific institutional design. Without repeating the findings of this law and economics literature, the main results can be summarized as follows: 1) the ex post compensation mechanism should be shaped in such a manner that effective¹⁴ ex ante incentives for prevention are provided as ex post recovery that will affect ex ante prevention;¹⁵ 2) ex post ad hoc government compensation will not provide effective ex ante incentives for prevention and may dilute incentives to purchase insurance;¹⁶ 3) insurance is better able to provide ex ante incentives for prevention via effective risk differentiation;¹⁷ 4) given systemic underestimation of the catastrophic risk by potential victims,¹⁸ mandatory comprehensive cover can improve both ex ante prevention and ex post compensation;¹⁹ 5) the supply of catastrophe cover can be stimulated through the government by acting as reinsurer of last

Aftermath of the Disaster: Liability and Compensation Mechanisms as Tools to Reduce Disaster Risks, STAN.J.INT'L J. 52, 95-178 (2016).

¹² See, e.g., Michael G. Faure, *Financial Compensation for Victims of Catastrophes: A Law and Economics Perspective*, 29 LAW & POL'Y 339 (2007).

¹³ 'Adequate' suggests that the financial compensation is large enough to reimburse the victims' losses.

¹⁴ 'Effective' means "adequate to accomplish a purpose; producing the intended or expected result". It should be noted that this study does not deal with efficiency considerations. In other words, we are not explicitly looking at whether the financial compensation mechanisms perform in the best possible manner with the least waste of time and effort.

¹⁵ Dari-Mattiacci & Faure, *supra* note 4.

¹⁶ Epstein, *supra* note 3; Kaplow, *supra* note 3.

¹⁷ George L. Priest, *The Government, the Market and the Problem of Catastrophic Loss*, 12 J. RISK & UNCERTAINTY 219 (1996).

¹⁸ Paul Slovic, Howard Kunreuther & Gilbert F. White, *Decision Processes, Rationality and Adjustments to National Hazards*, in THE PERCEPTION OF RISK 1 (Paul Slovic ed., 2000).

¹⁹ Howard Kunreuther, *The Case for Comprehensive Disaster Insurance*, 11 J.L. & ECON. 133 (1968).

resort;²⁰ and 6) especially in developing countries, affordability of the insurance premium should be stimulated through a voucher system that still reflects risk and incentivizes potential victims to adopt risk-reducing measures.²¹

On the other hand, the functional comparative method will be employed to analyze the extent to which the two main goals of an adequate financial compensation system can be reached, more particularly: 1) adequate financial compensation to victims ex post, and 2) providing ex ante incentives for disaster risk reduction. In alphabetical order, the study sketches the financial compensation system in Belgium (II), France (III), and Germany (IV) in order to finally discuss the Netherlands (V). In this respect, not only is the current system outlined, but also the historical evolution as well as the reasons for recent legislative changes. Of course, not all of the legal details of the system are described; only those that are crucial from the perspective of this study (law and economics methodology).²² Thus this Article focuses mainly on the financing of the system (whether it is private or public), the financial compensation provided, the involvement of the government, and the matter of whether the system offers incentives for prevention (via risk differentiation in the financing of the compensation or otherwise). However, the general question of whether and to what extent private insurance results in better compensation than public catastrophe funds does not form part of this Article.²³ This is an issue that has been extensively dealt with in law and economics literature. The goal of this Article is to take the aforementioned literature as one of the starting points of the study and to engage in an institutional comparative analysis. The critical comparison will specifically examine to what extent the situation in the Netherlands shows particular gaps in comparison with the other countries (VI).

²⁰ Bruggeman, Faure & Heldt, *supra* note 6.

²¹ Howard Kunreuther, *Catastrophe Insurance: Challenges for the US and Asia*, in *ASIAN CATASTROPHE INSURANCE 3* (Charles Scawthorn & Kiyoshi Kobayashi eds., 2008).

²² See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* (7th ed. 2007).

²³ See generally Alfred Endres, Cornelia Ohl & Bianca Rundshagen, *Land unter! Ein institutionenökonomischer Zwischenruf*, 29 LIST FORUM FÜR WIRTSCHAFTS- UND FINANZPOLITIK 284 (2003)(Ger.); Christian Gollier, *Some Aspects of the Economics of Catastrophe Risk Insurance*, in *CATASTROPHIC RISKS AND INSURANCE*, 13 (Organisation for Economic Co-operation and Development ed., 2005).

II. BELGIUM

A. Natural Disasters

1. Introduction

The types of natural catastrophes to which Belgium is exposed are relatively limited. The most extensive damage is normally caused by storms, heavy rainfall, and flooding (as Belgium has many surface waters). An exceptional earthquake – there have been instances in the province of Limburg – is also a possibility. Moreover, various studies on the potential consequences of climate change, as listed in IPCC²⁴ (2007), make clear that Belgium is potentially exposed to increasingly severe natural catastrophes.

While Belgium is exposed to a number of natural hazards, there have been few significant catastrophic losses in the past few years. Nevertheless, as regards the flooding risk in Flanders, the Administration for Environment, Nature, Land and Water Management (AMINAL) of the Ministry of the Flemish Region calculated that 72,000 hectares, or five percent of the territory of the Flemish Region, could be demarcated as flood-prone. With respect to the flood-prone territory, 6,166 hectares are situated in residential zones. Therefore, based on an average surface of 784 square meters per property, between 60,000 and 80,000 residences are represented.²⁵

Until 2003 Belgium only had a patchwork of regulations directly or indirectly applicable to victims of natural catastrophes searching for full financial compensation. Indeed, tort law,

²⁴ IPCC, *Climate Change 2007: Synthesis Report* (Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change), Geneva, 104 pp.

²⁵ Wetsontwerp tot wijziging, wat de verzekering tegen natuurrampen betreft, van de wet van 25 juni 1992 op de landverzekeringsovereenkomst en de wet van 12 juli 1976 betreffende het herstel van zekere schade veroorzaakt aan private goederen door natuurrampen [Proposal of an Act amending, as far as the insurance against natural disasters is concerned, the Act of 25 June 1992 on the land insurance contract and the Act of 12 July 1976 on the restoration of certain damage caused to private property by natural disasters], <Explanatory Memorandum, Parliamentary Proceedings of the Chamber of Representatives 2004-2005, no. 1732/001, p. 7 (Belg.). These figures have been largely confirmed in the *Milieurapport Vlaanderen*, see Vlaamse Milieu Maatschappij [FLEMISH ENVIRONMENT AGENCY], *OVERSTROMINGSRISICO* (Nov. 2015), <https://www.milieurapport.be/milieuthemas/waterkwantiteit/afvoer-van-neerslag-overstromingen/overstromingsrisico>.

insurance law, various branches of social security law, and general solidarity needed to be cumulated to achieve financial compensation.²⁶ Theoretically, victims could call on liability law to seek full compensation. However, tort law can apply only when a liable tortfeasor can be found, which will rarely be the case after a natural catastrophe. Hence, the victim will have to rely on other sources of financial compensation. Yet, most of the existing legislation from the other branches of law granted only partial compensation, and the satisfaction of conditional elements and the duration of procedures pose significant challenges to obtaining financial compensation. This situation changed drastically in 2005 when new legislation on financial compensation of victims of natural catastrophes was approved.

2. Evolution of Insurance Coverage

a. Creation of the Disaster Fund

After a whirlwind caused considerable damage in January 1976 to some parts of Belgium, the Council of Ministers decided to implement basic legislation allowing for the reparation of damage to private property due to natural disasters. The Act of 12 July 1976 on the Repair of Certain Damage Caused to Private Goods by Natural Disasters²⁷ installed a so-called Disaster Fund as a part of the National Cash Registry for Disaster Damage.²⁸ Pursuant to Art. 37 of the Act of 12 July 1976, the Disaster Fund is financed in the aftermath of a natural catastrophe by advances from the Treasury, loans and, where necessary, allocations drawn from the State budget, gifts, legacies, and profits from the National Lottery. The Federal Disaster Fund used to compensate, in instalments, for direct material damage caused by such a natural disaster, up to the amount of EUR 64,800, while a deductible of EUR 250 was applied – on the condition that the total direct damage to private goods amounted to at least EUR 1,250,000 and the average damage amounted to at least EUR

²⁶ Kristiaan Bernauw, *De verzekering van natuurrampen*, TIJDSCHRIFT VOOR VERZEKERINGEN = BULLETIN DES ASSURANCES (ED. BILINGUE) 153 (Belg.) (2006).

²⁷ Wet van 12 juli 1976 betreffende het herstel van zekere schade veroorzaakt aan private goederen door natuurrampen [Act of 12 July 1976 on the Repair of Certain Damage Caused to Private Goods by Natural Disasters] of July 12, 1976, Belgisch Staatsblad [B.S.] 13-08-1976 (Belgium).

²⁸ Following the regionalization of the Federal Disaster Fund in the sixth State reform, the regions have competence in this matter for disasters that occurred after 1 July 2014.

5,000 per family. The Act of 12 July 1976 permits full financial compensation only if the granted money is used for restoration or construction works within the following three years.

The Disaster Fund cannot be considered a great success since citizens must wait a considerable amount of time before receiving financial compensation for damage, the government must recognize the event as a natural disaster,²⁹ and the application procedure is very complex.³⁰ Moreover, financial compensation is granted only up to a certain amount and determined in accordance with statutory criteria that lack a consideration of real damage.³¹ Furthermore, the area of application of the Act of 1976 is specified narrowly and the damage arising from risks that under normal circumstances would be covered by insurance policies, such as fire, lightning, explosions, hail or storm, is excluded a priori from financial compensation. Finally, the legislature opted for a system whereby the financing mechanism only becomes operative from the moment a catastrophe occurs.

b. Insurance Solution for Fire

Since the Disaster Fund is financed by general taxpayers in accordance with the notion of solidarity, the Government of Belgium searched for other ways to provide financial compensation for natural catastrophes, such as calling on the insurance industry. The promulgation of the Royal Decree of 24 December 1992 on the Insurance against Fire and other Dangers as concerns the Simple Risks was a first, albeit small, step forward. This Royal Decree is applicable to those insurance

²⁹ Recognition of an event as a disaster is a political decision, in which other more than purely technical motives also play a role. Nevertheless, to be declared a natural disaster, the phenomenon needs to have an exceptional character and have caused considerable damage. The criteria are as follows: total damage must amount to at least EUR 1,239,467.60; average damage must amount to at least EUR 5,577.60 per family; and the phenomenon must have a retain period of a maximum of once every twenty years. See: Ministeriële omzendbrief van 30 november 2001 betreffende de toepassing van de wet van 12 juli 1976 betreffende het herstel van zekere schade veroorzaakt aan private goederen door natuurrampen [Ministerial Circular of 30 November 2001 on the Application of the Act of 12 July 1976 on the Repair of Certain Damage Caused to Private Goods by Natural Disasters – new norms on the recognition as natural disaster].

³⁰ Isabelle C. Durant, *Belgium, in FINANCIAL COMPENSATION FOR VICTIMS OF CATASTROPHES: A COMPARATIVE LEGAL APPROACH*, *supra* note 1, at 37, 72-73.

³¹ Bernauw, *supra* note 26, at 155-157.

agreements in which simple risks³² are insured against damage due to: 1) fire and related dangers (such as a lightning strike, explosion, implosion, and contact with an aircraft, vehicle or animal); 2) electricity; 3) attacks and labour conflicts; 4) storm, hail, ice and snow pressure; 5) natural disasters; 6) water; 7) broken windows; 8) theft; 9) indirect losses; and 10) industrial damage for which daily compensation is guaranteed.

c. Insurance Solution for Storm Coverage³³

Although damage caused by storms in principle could be (partially) covered by most fire insurance policies, the Disaster Fund did pay out EUR 15,284,632 of compensation after windstorm Daria hit the country in 1990. Consequently, the Fund was not able to build up a financial reserve, and the former Minister of Economic Affairs, Willy Claes, proposed in 1990 and in 1992 to transfer the task of the Disaster Fund to the private insurance sector.³⁴ This is one of the reasons why the Royal

³² Fire insurance coverage for simple risks relates to: 1) every good or entity of goods of which the insured value does not add up to more than EUR 743,680.57; and 2) each of the following goods for which the insured value is below EUR 23.921.725,24: a. offices and houses, including apartments or office buildings as far as the surface used for commercial purposes does not amount to more than twenty percent of the total surface of all the floors; b. agricultural, garden and viniculture companies, fruit and cattle-breeding companies; c. places used for the exercise of professions, with the exception of pharmacies; d. places used for religious events, such as for masses, abbeys and cloisters; e. places used for cultural, social and philosophical activities; f. buildings used for education, with the exception of higher education; g. music conservatories, museums and libraries; h. installations that are exclusively used for sport activities; and i. institutes for medical treatment, sanatoria, hospitals, clinics and rest homes. The mentioned amounts are coupled to the ABEX (*Association Belge des Experts*)-index, with a basic index of 375. Koninklijk besluit van 24 december 1992 betreffende de verzekering tegen brand en andere gevaren wat de eenvoudige risico's betreft [Royal Decree of 24 December 1992 concerning the insurance against fire and other hazards with regard to the simple risks] of Dec. 24, 1992, BELGISCH STAATSBLAD [B.S.], 31-12-1992, Art. 5 (Belg.).

³³ Koninklijk besluit van 16 januari 1995 tot wijziging van het koninklijk besluit van 24 december 1992 betreffende de verzekering tegen brand en andere gevaren wat de eenvoudige risico's betreft [Royal Decree of 16 January 1995 amending the Royal Decree of 24 December 1992 on insurance against fire and other hazards with regard to the simple risks] of January 16, 1995, BELGISCH STAATSBLAD [B.S.], 11-04-1995 (Belg.).

³⁴ Luc Nijs, *Wateroverlast en de rol van de verzekeringswereld*, in Ruimte voor water, de beste verzekering tegen wateroverlast, Brussels, AMINAL & KBC, 15 May 2001.

Decree of 16 January 1995 established that 'storm coverage' – which legally comprises hail, ice and snow pressure – would be an obligatory extension of every fire insurance policy that concerns simple risks.³⁵ The legal rule is now based on the principle that property will be mandatorily insured against storms that have a wind speed of no less than 100 kilometres per hour. Furthermore, the Royal Decree foresees a minimum level of coverage and authorises the exclusion of those goods that are highly vulnerable to the storm risk (such as light or easily movable constructions, open buildings and bell towers).

d. Mandatory Extension for Flood Risks

The Act of 21 May 2003, modifying the Act of 25 June 1992 on the Land Insurance Agreement, and the Act of 12 July 1976 on the Repair of Certain Damage Caused to Private Goods by Natural Disasters, in turn introduced flood coverage as a mandatory extension to the fire insurance policies concerning simple risks (in the same way as storm coverage had been introduced in 1995).³⁶ This mandatory extension only applies, however, to property situated in flood-prone areas (an optimal extension is available for property outside this risk area), which had to be demarcated by the country's three Regions. As a result, the Disaster Fund no longer needs to intervene since flood risk is insured or at least insurable. The Act of 1976, though, continues to exist for those events and property not included in the Act of 2003, namely for those goods that are not insured because of the low financial capabilities of the victim, and for agricultural damage. In addition, the Act of 2003 foresees the creation of an Office of Tariffication, providing insurance to those who do not have any coverage because either no agent is willing to cover the risk or the requested premium is too high.

³⁵ Explanatory Memorandum, Parliamentary Proceedings of the Chamber of Representatives 2004-2005, no. 1732/001.

³⁶ Kurt Termote, *Naar een verplichte dekking van natuurrampen?*, 375 BALANS 6 (1998) (Belg.); Kurt Termote, *Natuurrampen: nieuwe poging tot regeling*, 423 BALANS 4 (2000); Kurt Termote, *Verplichte overstromingsverzekering: niet voor iedereen*, 473 BALANS 5 (2003); Caroline Van Schoubroeck, *The quest for private insurance for damage caused by natural disasters: a Belgian case*, 6 J. BUS. L. 558 (2003); Chris Celis & Miek de Graeve, *De overstromingsverzekering: een slag in het water?*, 2006 TIJDSCHRIFT VERKOOP VASTGOED [TVV] 529 (Belg.).

e. Mandatory add on to fire insurance³⁷

The Act of 21 May 2003 did not enter into force, however, mainly due to difficulties with the demarcation of the flood-prone areas.³⁸ In addition, the Ministerial Council decided on 23 January 2004 to consolidate the loan that it had granted to the Disaster Fund.³⁹ The Belgian State then argued that it would be better off if a new act transferred coverage of natural disasters to the insurance sector. Therefore, the Act of 2003 was amended by the Act of 17 September 2005, building on the former legal provisions.⁴⁰

The Belgian legislature created general solidarity between all citizens who buy fire insurance for the so-called simple risks – comprising 90-95 percent of the Belgian population – by introducing a mandatory extension to natural disaster coverage. The latter consists of four perils: flooding (referring to water that comes from below); earthquakes; the flowing over or the impoundment of public sewers; and a landslide or subsidence. Fire insurance for simple risks and coverage for natural catastrophes are bound up inextricably, meaning that if the fire insurer refuses to offer coverage for natural disasters, he cannot offer any longer fire insurance itself.⁴¹ The extra insurance

³⁷ Wet van 17 september 2005 tot wijziging wat de verzekering tegen natuurrampen betreft, van de wet van 25 juni 1992 op de landverzekeringsovereenkomst en de wet van 12 juli 1976 betreffende het herstel van zekere schade veroorzaakt aan private goederen door natuurrampen [Act of 17 September 2005 amending as regards insurance against natural disasters, the Act of 25 June 1992 on the land insurance contract and the Act of 12 July 1976 on the restoration of certain damage caused to private property by natural disasters] of September 17, 2005, BELGISCH STAATSBLAD [B.S.], 11-10-2005 (Belg.).

³⁸ Philippe Colle, *De wet van 17 september 2005 betreffende de verzekering van natuurrampen*, 69 RECHTSKUNDIG WEEKBLAD [RW], nr. 23, 2005-2006, at 881 (Belg.).

³⁹ Chamber of Representatives, 25 April 2005, Bill on the Amendment, as concerns the Insurance Against Natural Disasters, of the Act of 25 June 1992 on the Land Insurance Agreement and the Act of 12 July 1976 on the Repair of Certain Damage Caused to Private Goods by Natural Disasters, DOC 51 1732/001, 2004-5, p. 14.

⁴⁰ See Act of 17 September 2005: Assuralia, *De natuurrampendeckking*, ASSURINFO, Oct. 19, 2005 (Belg.); Colle, *supra* note 38; Bernauw, *supra* note 26; Marc de Graeve, *De natuurrampenverzekering; de kogel is eindelijk door de kerk*, VOL TIJDSCHRIFT VOOR WETGEVING [T.V.W.] 81 (Belg.); Kurt Termote, *Natuurrampenverzekering: sinds 1 maart in voege*, 538 BALANS 5 (2006).

⁴¹ The fire insurer is entitled nevertheless to refuse insurance of flooding in the event that (part of) the building was constructed more than eighteen

premium will be adjusted to every individual case accordingly and one can expect it to be between EUR 3-4 per EUR 25,000 insured. The maximum indexed deductible for disaster coverage amounts to EUR 610 per claim.

This way, at least all direct damage to the insured property caused by a natural catastrophe or by an insured peril that results directly from it (notably fire, explosion, or implosion) is compensated. Additionally, damage to the insured property due to measures taken by a legally constituted authority to safeguard and protect goods and persons as well as the clearance and demolition expenses associated with reconstruction of the property is compensated. Potential accommodation costs occurred during the three months following the catastrophe (if the dwelling became inhabitable) can also be reimbursed. Non-gathered crops, soil, objects located outside of the building (unless if they are permanently attached), easily movable constructions, garden houses and vehicles, among other things, are excluded from retribution, unless otherwise stipulated.

Furthermore, each insurer has been given some limits regarding the monetary burden he should bear, since disaster coverage concerns catastrophic risks that can reach extraordinary proportions – the *ratio legis* being to avoid the financial downfall of the insurance companies. Indeed, a limit per insurance company (instead of a global limit for the insurance market) has the advantage that the insurer can calculate precisely the maximum risks he is taking, and thus find reinsurance more easily (Art. 68-8 paragraph 2, Act of 25 June 1992 on the Land Insurance Agreement). When this limit is attained, the National Cash Registry for Disaster Damage intervenes with a general upper limit of EUR 280 million (EUR 700 million for earthquakes) per event (Art. 34-2, 1° and 34-3 of the Act of 12 July 1976). If these amounts are not sufficient to compensate the victims fully, the intervention of the Cash Registry will be reduced in proportion.

These limits seem adequate to compensate for most losses, especially considering the fact that granted compensations for the three most destructive natural catastrophes that have hit Belgium since 1976 until 2005⁴² amounted to EUR 74.7 million, EUR 42

months after the publication in the Belgian Gazette of the Royal Decree that classifies the building as being in a flood-prone area. The *ratio legis* of this exception lies in the empowerment of, on the one hand, the local administrations not to grant building licences, and, on the other hand, the owners who know that they reside in a risk area.

⁴² In particular the storms of 25-26 January 1990, the earthquake of 8

million, and EUR 38.125 million, respectively.⁴³

In addition, the 2005 Act has set up an Office of Tariffication. The insurance sector has calculated that between three and four percent of the insured risks for fire damage are in fact uninsurable for flooding and that approximately eight percent of those insured against fire, coverage will see a doubling of the premium. It is for these uninsurable flooding risks that the Office of Tariffication will specify the premium conditions.

To conclude, the Act of 17 September 2005 allows victims of natural catastrophes to direct themselves to their fire insurer (as long as their damage relates to the simple risks in the sense of the fire insurance) without recourse to the Disaster Fund, which is advantageous for both the victims and the Belgian State.⁴⁴ As far as the victim is concerned, the long and often complicated administrative procedure associated with the Disaster Fund is avoided. The damaging natural peril no longer needs to be declared a natural catastrophe by the Ministerial Council. As for the Belgian State, the main burden of compensating the victims of natural catastrophes is now borne by the insurers. The Disaster Fund only intervenes if the limit of the individual insurance company has been reached and if the damaged property is not insured due to the financial position of the victim.

November 1983 at Liège/Luik, and the abundant rains of 13-15 September 1998.

⁴³ Explanatory Memorandum, Chamber of Representatives 2004-5, no. 1732/001, p. 15. The actual losses and needs for compensation can be much higher than the tens of millions of euros mentioned in the Belgian parliament. First, the numbers that are given are not corrected for inflation and current risks may be higher due to ongoing population growth and accumulation of capital. Second, historic losses over the short period of existence of the Belgian Fund (approximately 25 years) are likely to be lower than the probable maximum losses that can be estimated using loss models. Hence, flooding in Belgium can inflict more damage than the amounts mentioned in the Belgian parliament. For an overview of all disasters hitting the Belgian continent between 1993 and 2012, see SERVICE PUBLIC FÉDÉRAL INTÉRIEUR, DIRECTION DES CALAMITÉS, ÉTUDE STATISTIQUE DES CALAMITÉS DEPUIS 1993 (2013), https://ibz.be/sites/default/files/media/docs/etude_statistique_des_calamitsdepuis_1993_version_2013septembre.pdf. The top 10 natural disasters in Belgium is available at <http://emdat.be/>.

⁴⁴ Colle, *supra* note 38, at 885.

f. New Legislation⁴⁵

The Act of 4 April 2014 repeals most of the provisions of the 1992 Insurance Act. However, all relevant articles related to the insurance against natural disasters as concerns the simple risks have been literally taken over in the new Act of 2014.

g. Separate Solution in the Flemish Region⁴⁶

Following the sixth State reform (via the Special Act of 6 January 2014), the three Regions in Belgium have been attributed the competence of legislating and implementing the financial compensation in response to damage caused by disasters, and this from 1 July 2014 onwards. Consequently, Flanders promulgated the Decree of 3 June 2016 regarding the Compensation for Damage caused by General Disasters in the Flemish Region. This decree unites the principles of compensation, reimbursement procedures and financing methods for damage suffered by general disasters on the territory of the Flemish Region. It builds on the basics of the Act of 12 July 1976 – which it repeals, while it also strives for administrative simplification and an update of the reimbursement process.⁴⁷ The Decree of 3 June 2016 has been further implemented by the Decision of the Flemish Government of 23 December 2016.⁴⁸

⁴⁵ Wet van 4 april 2014 betreffende de verzekeringen [Act of 4 April 2014 on insurance] of April 4, 2014, B.S. 30-04-2014 (Belg.)

⁴⁶ Decreet van 3 juni 2016 betreffende de tegemoetkoming voor schade, aangericht door algemene rampen in het Vlaamse Gewest [Decree of 3 June 2016 concerning the compensation for damage caused by general disasters in the Flemish Region] of June 3, 2016, B.S. 23-06-2016 (Belg.). Similar legislative measures have been promulgated in the Walloon Region, see Programmadecreet houdende verschillende maatregelen betreffende de begroting inzake natuurrampen, verkeersveiligheid, openbare werken, energie, huisvesting, leefmilieu, ruimtelijke ordening, dierenwelzijn, landbouw en fiscaliteit [Program Decree of 12 December 2014, which establishes the *Fonds Wallon des Calamités naturelles*] of Dec. 12, 2014, B.S. 29-12-2014 (Belg.).

⁴⁷ Ontwerp van decreet betreffende de tegemoetkoming voor schade, aangericht door algemene rampen in het Vlaamse Gewest, Explanatory Memorandum, 695 (2015-2016) – Nr. 1, page 3, available at <https://docs.vlaamsparlement.be/docs/stukken/2015-2016/g695-1.pdf>.

⁴⁸ Besluit van 23 december 2016 van de Vlaamse Regering tot uitvoering van het decreet van 3 juni 2016 betreffende de tegemoetkoming voor schade, aangericht door algemene rampen in het Vlaamse Gewest [Decree of 23 December 2016 of the Flemish Government implementing the Decree of 3 June 2016 regarding the compensation for damage caused by general disasters in the Flemish Region] of December 23, 2016, B.S. 13-02-2017 (Belg.)

In Flanders, exceptional natural phenomena that meet a particular financial criterion (i.e. damage to private and public goods exceeding EUR 30 million) can be recognized as a “general disaster”. As a result victims can turn to the Flemish Disaster Fund.⁴⁹ The same is the case if the aforementioned financial criterion is not met, but if other specific scientific criteria are fulfilled. The specific criteria, laid down in the Decision of 23 December 2016, are based on the return period of a disaster or on a determined scientific scale.

In order to determine the geographical extent of the general disaster, the municipalities receive up to 60 days after the exceptional natural phenomenon to request that their territory is included in the geographical demarcation area of the general disaster. This period for applying for recognition to the Flemish Government is being restricted in comparison with the 1976 Act and fits in with the overall goal to accelerate the procedure.

Contrary to the 1976 Act, this decree considers the fire insurance coverage for simple risks: the physical goods which can be insured under this insurance coverage are excluded from the scope of the 2016 Decree. It can be reiterated here that this fire insurance coverage for simple risks provides coverage against damage caused by lightning, explosion, storm (including the gusts of wind with a local character), hail, ice and snow pressure, flooding, overflowing or pushing up public sewers, landslides or subsidence and earthquakes.

The request for financial compensation needs to be submitted within three months following the publication of the recognition decision in the Official Journal. The principle laid down in the 2016 Decree is that the financial compensation should be used to repair the damage. The compensatory amount is calculated by applying coefficients to the total net amount of the damage, while a deductible of EUR 500 is applied.

Finally, like the 1976 Act, the Flemish Government acts as a Guarantee Fund for insurers in case they are confronted with some harsh financial conditions. The intervention of the Flemish Government covers the part of the financial compensation the insurer cannot pay to his insureds.

⁴⁹ Agricultural disasters are legislated in a separate Decree.

B. Technological disasters

1. Strict Liability

Belgian law has created quite a few strict liabilities for technological disasters.⁵⁰ The Civil Code includes a strict liability for the guardian of a defective object (Article 1384, al. 1 of the Civil Code). Strict liability is also reserved for employers and other superiors if a tort is committed by their agents (Article 1384, al. 3 of the Civil Code). The owner of an animal is strictly liable if damage is caused by the animal (Article 1385 of the Civil Code) and the owner of a building is strictly liable with respect to damage caused by the partial or complete collapse of a building if that was caused by a construction defect or a lack of maintenance (Article 1386 of the Civil Code).⁵¹

Specific statutes equally introduce strict liabilities *inter alia* with respect to damage caused by mines, the transport of gas, damage caused by toxic waste, fire or explosions in public buildings and nuclear accidents.⁵² However, that does not imply that the Belgian rules with respect to strict liability have been developed in a systematic manner. The reality is rather that specific statutes introduced strict liability ad hoc, usually at the occasion of a scandal or large accident.⁵³ For example, it is unclear why strict liability is introduced for fires or explosions in public buildings but not for operators of a petrochemical plant.⁵⁴

2. Solvency Guarantees

Belgian law has a large amount of mandatory solvency guarantees such as compulsory liability insurance.⁵⁵ An important

⁵⁰ See, e.g., HUBERT BOCKEN & INGRID BOONE, HET BUITENCONTRACTUEEL AANSPRAKELIJKHEIDSRECHT EN ANDERE SCHADEVERGOEDINGSMECHANISMEN 123-171 (2010) for an overview.

⁵¹ Burgerlijk Wetboek [Civil Code], Book III, B.S. 03-09-1807 (Belg.).

⁵² See, e.g., Hubert Bocken, *Van fout naar risico: Een overzicht van de objectieve aansprakelijkheidsregelingen naar Belgisch recht*, 21 TIJDSCHRIFT VOOR PRIVAATRECHT [TPR] 329, 329-415 (1984) for an overview. The regulation concerning nuclear accidents will be discussed in the next section.

⁵³ MICHAEL G. FAURE & ROGER VAN DEN BERGH, OBJECTIEVE AANSPRAKELIJKHEID, VERPLICHTE VERZEKERING EN VEILIGHEIDSRREGULERING 201-202 (1989).

⁵⁴ Hartlief & Faure, *supra* note 6, at 1008-09.

⁵⁵ See, e.g., Jean Rogge, *De verplichte verzekering: een ongedefinieerde notie*, in LIBER AMICORUM HUBERT BOCKEN 239, 242 (Ingrid Boone, Ignace Claeys & Luc Lavrysen eds., 2009), and Véronique Bruggeman, Michael G. Faure & Ton Hartlief, *Verplichte verzekering in België*, 2007 TIJDSCHRIFT

example of such a mandatory solvency guarantee relates to the strict liability for personal injury and material damage caused to third parties as a result of fire or explosion in a public building – without prejudice to the ordinary recourse to the persons responsible for the damage.⁵⁶ The Act not only creates strict liability, but also a mandatory solvency guarantee: a place cannot be opened to the public if the strict liability to which it is exposed has not been adequately covered through liability insurance. The amount to be covered is regulated in a Royal Decree⁵⁷ for damage related to personal injury; the limit is EUR 14,873,611.49⁵⁸ and for material damage the limit is EUR 743,680.57.⁵⁹ These amounts are increased based on inflation. According to this system, when an explosion in a public place takes place, strict liability and mandatory liability insurance up to the mentioned limits would be applicable.

As a result of strict liability and mandatory liability insurance, victims of a technological disaster in a public building in Belgium have a reasonable likelihood of being compensated. The reasonable likelihood of compensation is bolstered by the fact that such victims have a so-called direct action against the liability insurer, which entitles the victims to priority over other creditors. By receiving priority over other creditors, victims avoid the risk that the insured amounts would no longer be available as compensation in the event of bankruptcy.⁶⁰ Of course questions

VOOR VERZEKERINGEN 387, for details.

⁵⁶ Based on the Wet betreffende de preventie van brand en ontploffing en betreffende de verplichte verzekering van de burgerrechtelijke aansprakelijkheid in dergelijke gevallen [Act on the prevention of fire and explosion and on the compulsory insurance of civil liability in such cases] of Jul. 30, 1979, B.S., Sept. 20, 1979. See Aloïs Van Oevelen & Armand Vandeplas, *Preventie van brand en ontploffing, objectieve aansprakelijkheid en verplichte burgerlijke aansprakelijkheidsverzekering*, 44 RECHTSKUNDIG WEEKBLAD [RW], no. 4, 1980-1981, at 217 for details.

⁵⁷ Koninklijk besluit van 5 augustus 1991 tot uitvoering van de artikelen 8, 8bis en 9 van de wet van 30 juli 1979 betreffende de preventie van brand en ontploffing en betreffende de verplichte verzekering van de burgerrechtelijke aansprakelijkheid in dergelijke gevallen [Royal Decree of 5 August 1991 on the articles 8, 8bis and 9 of the Act of 30 July 1979 on the prevention of fire and explosion and on the compulsory insurance of civil liability in similar cases] of August 5, 1991, B.S. 30-08-1991 (Belg.), as amended.

⁵⁸ The Royal Decree mentions an amount of 600 million Belgian francs, now of course transposed to euros.

⁵⁹ The amount mentioned in the Royal Decree is 30 million Belgian francs.

⁶⁰ See Geert Jocqué, *De rechtsbescherming van de verzekerde en de benadeelde in de aansprakelijkheidsverzekering* (2015) (unpublished

can still arise with respect to the adequacy of the financial compensation mechanism.

With respect to cases involving non-public buildings, specific strict liability may not be applied to the personal injury despite the occurrence of activities which could be deemed dangerous, such as the operation of a petrochemical plant.⁶¹ In cases of such a technological disaster the strict liability of the guardian of a defective object might be applicable.⁶² For risky activities, mandatory liability insurance often applies, even though this may not only be imposed via a statutory duty. Often, insurance coverage is required as a condition in the environmental permit of the specific installation. Another problem is that there may be cases in which there is no mandatory solvency guarantee despite strict liability. Generally, strict liabilities, mandatory solvency guarantees (like mandatory liability insurance), or both, have been created for most high-risk activities (which could create technological disasters) in Belgium.⁶³

3. Rapid Claims Settlement

A new Belgian Act was promulgated on 13 November 2011 concerning financial compensation for victims of technological accidents, which came into force on 1 November 2012.⁶⁴ Its emergence was related to the disaster of an exploding gas pipeline operated by Fluxys, a Belgian company, that happened on 30 July 2004 in Ghislenghien. As a result of the

dissertation, Ghent University (on file at UGent) for a more detailed discussion (<http://hdl.handle.net/1854/LU-8512153>).

⁶¹ If environmental damage would be caused as a result of that hypothetical accident, as a consequence of the implementation of the Environmental Liability Directive, strict liability would apply to the environmental damage, but not to the personal injury resulting from the accident.

⁶² This is based on Art. 1384 al. 1 of the Belgian Civil Code.

⁶³ Hartlief & Faure, *supra* note 6, at 1010.

⁶⁴ Wet van 13 november 2011 betreffende de vergoeding van de lichamelijke en morele schade ingevolge een technologisch ongeval [Act of 13 November 2011 concerning the financial compensation for victims of technological accidents] of Nov. 13, 2011, B.S., Feb. 24, 2012, 12678. See, e.g., C. Coune, *Wet van 13 november 2011 betreffende de vergoeding van de lichamelijke en morele schade ingevolge een technologisch ongeval*, 5 TIJDSCHRIFT VOOR BELGISCH HANDELSRECHT [R.D.C.-T.B.H.], no. 5, 2012, at 5; C. De Mulder, *Nieuwe wettelijke regeling voor de vergoeding van slachtoffers van grote technologische rampen*, 76 RECHTSKUNDIG WEEKBLAD [RW], no. 27, 2013, at 1076.

accident in Ghislenghein, 24 people died and over 150 people were injured. Because of the link between civil procedure and criminal procedure in Belgium, most of the victims of the Ghislenghein accident did not receive compensation until seven years after the incident. Accidents, such as the exploding gas pipeline in Ghislenghein, illustrate the need for a new Act that specifically aims to accelerate victim compensation.⁶⁵

The Act applies to so-called technological disasters of great extent, which are defined as technological incidents involving bodily injury to at least five persons through death or hospitalization. The Act will apply when a specific committee⁶⁶ declares the incident to be an exceptional disaster, and victims shall claim financial compensation within six months from the publication of the committee's decision. Subsequently, compensation matters are taken care of by the Belgian motor insurance Guarantee Fund. A Special Unit in charge of the victim's support is appointed by the public prosecutor. This Special Unit establishes a list of victims and communicates this list to the Fund. Victims can ask for financial compensation by addressing a registered letter to either the Fund or the Special Unit. The Fund in principle only compensates bodily injury which is not compensated by the general social security framework or by other insurance mechanisms. Victims are free to pursue compensation by filing a claim under the Act or under Belgian Civil Liability Law.

The Act does not specify the conditions under which the Fund will compensate. Art. 10 of the Act only specifies that the Fund will compensate the victim or their descendants according to the rules of common law, considering the exceptional character of the damage.

Within three months after the Fund has received the list of the victims, the administration of the Fund will formulate an informed advice explaining whether the damage is of such a nature that it should be compensated on the basis of the statute. If the advice regarding financial compensation is affirmative and

⁶⁵ See generally Stefaan Voet, *Belgium*, in CONSUMER ADR IN EUROPE: CIVIL JUSTICE SYSTEMS 25 (Christopher Hodges, Iris Benöhr & Naomi Creutzfeldt-Banda eds., 2012); Stefaan Voet, *Public Enforcement and A(O)DR as Mechanisms for Resolving Mass Problems: a Belgian Perspective*, in RESOLVING MASS DISPUTE: ADR AND SETTLEMENT OF MASS CLAIMS 270 (Christopher Hodges & Astrid Stadler eds., 2013) for an overview and critical discussion of (consumer) ADR in Belgium.

⁶⁶ This specific committee is often referred to as the "committee of wise men".

if the damage can be quantified, the Fund will provide an offer of compensation. This offer is final. According to Art. 14 of the Act, the acceptance of the Fund's final offer by a victim or their descendants is deemed a final settlement of the case. If the victim does not agree with the decision of the Fund according to Art. 10, he can sue the Fund before the civil court.

The financing is based on pre-payment by insurance companies. Pursuant to Art. 16, when the committee's decision to declare the incident a technological disaster has been published, the Fund will make an estimate of the damage and ask private insurers to pay to the Fund based on their market share. Insurers active in the area of civil liability insurance (with the exception of insurances covering liability in the field of motor vehicles) are forced to contribute to the Fund on the basis of Art. 16, paragraph 2. The total maximum amount insurers will have to contribute is EUR 50 million per year.⁶⁷

The Fund is, moreover, subrogated in the rights of the victim against the liable tortfeasor and his insurer.⁶⁸ Art. 17 sets out that the Fund recovers the damages paid, including the interest as well as the fees and costs for managing the Fund, from the liable tortfeasor and its insurer. When no liable tortfeasor can be identified or when it is not possible to recover the amounts from the liable tortfeasor (because of his insolvency), the Fund requests repayment from the National Disaster Fund. The amounts that can hence be recollected by the Fund from either the tortfeasor, the tortfeasor's liability insurer, or from the National Disaster Fund will then, according to the market share, be paid back to the insurance companies that initially contributed.

Art. 20, however, stipulates that if after a procedure it appears that there is no liable tortfeasor, the entire costs of the compensation will be paid by the National Disaster Fund. On the other hand, if there is a liable tortfeasor from whom it is impossible to obtain financial compensation due to insolvency, the National Disaster Fund takes care of 50% of the costs that could not be recovered. The remaining 50% will in that case presumably remain with the insurers who contributed.

Regarding the Ghislenghien incident in which the Fund intervened, all 140 files have been closed, leading to a total

⁶⁷ Act concerning the financial compensation for victims of technological accidents, *supra* note 64, Art. 16, paragraph 5.

⁶⁸ *Id.* at Art. 9, paragraph 4.

compensation of EUR 6,599,919.⁶⁹

C. Nuclear Accidents

1. General Framework

Because all four countries under discussion are members of the relevant Conventions, the general framework regarding the financial compensation of victims of nuclear accidents is applicable to all countries. As a result, this Article will focus on the methods in which implementation in the particular countries differs.

Two separate international compensation regimes were established in the 1960s, and both were substantially revised after the Chernobyl accident of 1986. The Paris Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960 ("Paris Convention")⁷⁰ and the Supplementary Convention to the Paris Convention on Third Party Liability in the Field of Nuclear Energy of 31 January 1963 ("Brussels Supplementary Convention")⁷¹ were developed under the auspices of the OECD Nuclear Energy Agency ("NEA"). The aim of the 1963 Brussels Supplementary Conventions is to supplement the compensation system provided in the Paris Convention "with a view to increasing the amount of compensation for damage which might result from the use of nuclear energy for peaceful purposes".⁷² The second regime was developed under the aegis of the International Atomic Energy Agency ("IAEA") and relates to the Vienna Convention on Civil Liability for Nuclear Damage of 21 May 1963 ("Vienna Convention").⁷³ These two regimes are

⁶⁹ Fonds Commun de Garantie Automobile, Rapport Annuel Exercice 2012, 12, http://www.fcgb-bgwf.be/documents/Rap-Ver/RAPPORT_2012_FCGA.pdf.

⁷⁰ Convention on Third Party Liability in the Field of Nuclear Energy, July 29, 1960, 956 U.N.T.S. 251 [hereinafter Paris Convention]. This Convention was amended by the Additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982. For more information, see: <https://www.oecd-nea.org/law/multilateral-agreements/brussels-sup-convention-third-party-liability.html>.

⁷¹ Convention Supplementary to the Convention on Third Party Liability in the Field of Nuclear Energy, *opened for signature* Jan. 31, 1963, 1041 U.N.T.S. 358 (entered into force Dec. 4, 1974) [hereinafter Brussels Supplementary Convention].

⁷² *Id.* considerations.

⁷³ Vienna Convention on Civil Liability for Nuclear Damage, *opened for signature* May 21, 1963, 1063 U.N.T.S. 265 (entered into force Nov. 12, 1977) [hereinafter Vienna Convention].

usually referred to as the first generation of nuclear liability Conventions.⁷⁴

The 1986 Chernobyl accident triggered an intensive discussion about the limitations of both conventions and resulted in an eventual revision process of the existing regimes. The so-called second generation of nuclear liability Conventions was established thereafter. The Conventions comprising the second generation include the Joint Protocol of 1988 Relating to the Application of the Vienna Convention and the Paris Convention ("Joint Protocol"),⁷⁵ the Protocol to Amend the 1963 Vienna Convention on Civil Liability for Nuclear Damage ("Protocol to the Vienna Convention"),⁷⁶ the Convention on Supplementary Compensation for Nuclear Damage ("CSC"),⁷⁷ the 2004 Protocol to Amend the Convention on Third Party Liability in the Field of Nuclear Energy ("Protocol to Amend the Paris Convention"),⁷⁸ and the Protocol to Amend the Convention of 31 January 1963 Supplementary to the Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy ("Protocol to the Brussels Supplementary Convention").⁷⁹

Several fundamental principles underly the International Nuclear Liability Conventions, in particular strict liability, limited liability, and financial security.

⁷⁴ See Michael G. Faure & Tom Vanden Borre, *Compensating Nuclear Damage: A Comparative Economic Analysis of the US and International Liability Schemes*, 33 WM. & MARY ENVTL. L. & POL'Y REV. 220 (2008).

⁷⁵ Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention, *opened for signature* Sept. 21, 1988, 1672 U.N.T.S. 293 (entered into force April 27, 1992).

⁷⁶ The Protocol to Amend the Vienna Convention was adopted by a Diplomatic Conference, 8-12 September 1997, and was opened for signature at Vienna on 29 September 1997 at the 41st General Conference of the International Atomic Energy Agency, see INT'L ATOMIC ENERGY AGENCY, <https://www.iaea.org/sites/default/files/infcirc566.pdf>.

⁷⁷ Convention on Supplementary Compensation for Nuclear Damage, Sept. 12, 1997, <<https://www.iaea.org/sites/default/files/infcirc567.pdf>>, otherwise International Atomic Energy Agency, INFCIRC/567, available at: <https://www.iaea.org/sites/default/files/infcirc567.pdf>.

⁷⁸ Protocol to Amend the Convention on Third Party Liability in the Field of Nuclear Energy of 29 July 1960, as amended by the additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982, Feb. 12, 2004, available at: http://www.oecd-nea.org/law/paris_convention_protocol.pdf. This 2004 Protocol has not yet entered into force.

⁷⁹ Protocol to Amend the Convention of 31 January 1963 Supplementary to the Paris Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy, 12 February 2004, available at: <https://cil.nus.edu.sg/wp-content/uploads/formidable/18/2004-Protocol-to-Amend-the-Brussels-Supplementary-Convention-on-Nuclear-Third-Party-Liability-2.pdf>.

The Paris Convention establishes a system of absolute liability.⁸⁰ According to this system, the operator⁸¹ is liable for damage caused by a nuclear incident in a nuclear installation or involving nuclear substances coming from such installations.⁸² Similar stipulations regarding absolute liability and exonerations can also be found under the Vienna Convention.⁸³ The Conventions of the second generation have not changed the principle that strict liability applies to the operator of a nuclear power plant. However, an important change took place as far as the operator's available defences are concerned: natural disasters are no longer an applicable defence.⁸⁴

Under the Paris Convention and the Vienna Convention, the operator's liability is limited both in amount and in time. The Paris Convention sets the maximum liability of the operator at 15 million Special Drawing Rights ("SDRs") (around EUR 18.4 million or USD 21 million) but allows the Contracting Party to establish a greater or lesser amount by legislation considering the capacity of insurance and financial security. The Contracting Party can also require a lower amount of liability according to the nature of the installation. The lower amount should be no less than 5 million SDRs (around EUR 6.1 or USD 7 million).⁸⁵ By contrast, the Vienna Convention sets the cap of liability at no less than USD 5 million.⁸⁶

The liability limitation has, however, been changed under the second generation nuclear Conventions. The Protocol to the Paris Convention increases the limit for nuclear operators to no less than EUR 700 million. The Contracting Party can reduce the liability to no less than EUR 80 million for the carriage of nuclear substances according to the reduced risks.⁸⁷ The Convention even allows for the adoption of unlimited liability by the Contracting Parties, as long as the financial security required is no less than

⁸⁰ Paris Convention, *supra* note 70, Exposé des Motifs, point 14. See PHILIPPE SANDS & JACQUELINE PEEL, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW 738-745 (3rd ed. 2012).

⁸¹ Paris Convention, *supra* note 70, Art. 1(a)(vi), defining 'operator' as 'the person designated or recognised by the competent public authority as the operator of that installation'.

⁸² *Id.* at Art. 3.

⁸³ Vienna Convention, *supra* note 73, at Arts. I(1)(k), IV(1) & IV(3).

⁸⁴ See Protocol to the Paris Convention, Art. 9; Protocol to the Vienna Convention, Art. 4(3).

⁸⁵ Paris Convention, *supra* note 70, at Art. 7(b).

⁸⁶ Vienna Convention, *supra* note 73, at Art. V(1).

⁸⁷ Protocol to the Paris Convention, Art. 7(a) and (b).

the amount mentioned above.⁸⁸

Further, seeking financial security coverage for the operator's liability is important for the international regimes on nuclear liability. Both Conventions require the operator to have and maintain insurance or other financial security up to its liability cap.⁸⁹

In addition, it should be mentioned that the Brussels Supplementary Convention added two additional layers of financial compensation via public funds on top of the first tier of private funds (operator's liability) provided for by the Paris Convention. Indeed, the first tier of the Brussels Supplementary Convention is the insurance coverage of the nuclear operator as established under the Paris Convention. On top of that amount, the Brussels Supplementary Convention provides for two additional tiers of public funds: one 'national' public fund and one international solidarity fund ('third tier'). The national public fund is to be made available by the Installation State in whose territory the nuclear installation of the liable operator is situated. The international solidarity fund is to be made available by all Contracting Parties according to a pre-determined formula. In particular, according to Article 3 of the Brussels Supplementary Convention, the Contracting Parties undertake that compensation in respect of damage caused by a nuclear accident shall be provided up to the amount of 300 million SDRs per incident (EUR 368.30 million or USD 418.20 million). Such financial compensation shall be provided:

- Up to an amount of at least 5 million SDRs, out of funds provided by insurance or other financial security, such amount to be established by the legislation of the Contracting Party in whose territory the nuclear installation of the liable operator is situated;
- A second tier consisting of the difference between SDR 175 million and the amount required under the first tier (thus maximum 170 million SDRs or EUR 208.705 million or USD 237 million), out of public funds to be made available by the Contracting Party in whose territory the nuclear installation of the liable operator is situated;
- A third tier of 125 million SDRs (EUR 153.459

⁸⁸ *Id.* at Art. 10(b).

⁸⁹ Paris Convention, *supra* note 70, Art. 10; Vienna Convention, *supra* note 73, Art. VII.

million or USD 174 million), out of public funds to be made available by the Contracting Parties according to a formula for contributors which is based on the GNP and the thermal capacity of the reactors.

Under the Brussels Supplementary Convention, each Contracting Party has certain freedoms. It can establish the maximum liability of the operator, pursuant to the Paris Convention, at 300 million SDRs, and provide that such liability shall be covered by the insurance of the nuclear operator. In that case the Installation State has met its obligation under the Convention, and it must not provide for national public funding in the second layer. However, the Contracting Party can also set the maximum liability of the operator at an amount at least equal to the insurance of the nuclear operator and provide that, in excess of such amount and up to 300 million SDRs, public funds shall be made available by some means other than as cover for the liability of the operator.⁹⁰

Important changes occurred in the international regime after the Chernobyl accident. As mentioned above the first tier liability, the liability of the operator of the nuclear power plant, shall increase to EUR 700 million. Moreover, according to the Protocol to the Brussels Supplementary Convention, the Contracting Parties will undertake that financial compensation in respect to nuclear damage shall be provided up to an amount of EUR 1.5 billion per nuclear incident. This will be divided as follows:

- Up to an amount of at least EUR 700 million: funds provided by insurance or other financial security or out of public funds provided pursuant to Art. 10(c) of the Paris Convention;
- Between this amount and EUR 1,200 million: public funds to be made available by the Contracting Party in whose territory the nuclear installation of the liable operator is situated;
- Between EUR 1.2 billion and EUR 1.5 billion, out of public funds to be made available by all the Contracting Parties according to the formula for contributions.

⁹⁰ See Tom Vanden Borre, *Shifts in Governance in Compensation for Nuclear Damage: 20 Years After Chernobyl*, in *SHIFTS IN COMPENSATION FOR ENVIRONMENTAL DAMAGE* 302 (Michael G. Faure & Albert Verheij eds., 2007), for more details.

Finally, the Convention on Supplementary Compensation for Nuclear Damage (CSC), adopted on 12 September 1997, is a new and independent legal instrument, which means that a State does not need to be a party to the Vienna or Paris Conventions in order to become a party to the CSC.

According to Article III.1.A of the CSC, the Installation State shall ensure the availability of at least 300 million SDRs. This provision provides for an obligation of the Installation State to ensure that 300 million SDRs are available: the Installation State is free to choose how this amount is funded (private insurance, regional agreement, etc.). A State meets its obligation under Art. III.1.A of the CSC when it imposes liability on the operator for the entire amount. Therefore, this Article does not oblige a State to make public funds available. According to Article II.1.B of the CSC, however, the Contracting Parties shall make public funds available beyond the amount required under the first tier.⁹¹

If one were to summarize the situation, one could hold that in addition to the individual liability (with financial caps) of the nuclear operator there are two additional types of funding mechanisms. First, there is an obligation of an Installation State to make certain amounts of money available. This can take place either by providing for public funding, or by making the nuclear operator liable for the total amount – this is the second tier of the Brussels Supplementary Convention and the first tier under the CSC. Second, there is a system that can be called an international solidarity fund, funded by all Contracting Parties.⁹² This Collective State Fund is an additional and supplementary compensation mechanism that can hence be applied, if a State is a member to the CSC, and when the particular State is neither in the NEA nor in the Vienna Convention regime.

The total amounts available in the nuclear liability regime can be summarized in the following Table 1:

⁹¹ According to the following formula: the amount which shall be the product of the installed nuclear capacity of that Contracting Party multiplied by 300 SDRs per unit of installed capacity; and the amount is determined by applying the ratio between the United Nations rate of assessment for that Contracting Party as assessed for the year preceding the year in which the nuclear incident occurs, and the total of such rates for all Contracting Parties to 10% of the sum of the amounts calculated for all Contracting Parties.

⁹² Brussels Supplementary Convention, *supra* note 71, at arts. III(a)-III(b); JING LIU, COMPENSATING ECOLOGICAL DAMAGE: COMPARATIVE AND ECONOMIC OBSERVATIONS 214 (2013); SANDS & PEEL, *supra* note 80, at 740.

Amount in million EUR			
What Convention?	Who pays?	First generation	Second generation
Paris Convention	Nuclear operator	57	700
Brussels Supplementary Convention	Installation State (or nuclear operator)	193.7	500
	Collective State Fund	142.4	300
Total NEA-regime		341.8	1,500
Vienna Convention	Nuclear operator	4.2	170.9
	Collective State Fund	-	170.9
Total Vienna Convention		4.2	341.8
Convention on Supplementary Compensation	Operator/Installation State		341.8
	Collective State Fund		341.8
Total CSC			683.7

Table 1: Available amounts of compensation under the international nuclear liability Conventions.⁹³

Table 1 demonstrates that under the nuclear compensation scheme of the second generation, public funding is either newly created or kept at the same level as in 1963 in relative terms.⁹⁴ In absolute terms, there is considerably more public funding in the second generation Conventions. In particular, under the 2004 Brussels Supplementary Convention, the public intervention has more than doubled,⁹⁵ and under the IAEA regime, no public intervention existed under the Conventions of the first generation.

⁹³ See Faure & Vanden Borre, *supra* note 74, at 239 (providing the amounts of compensation in USD according to the exchange rate in 2008).

⁹⁴ See Vanden Borre, *supra* note 90, at 303-04.

⁹⁵ In the second tier of the Installation State the amount rose from EUR 202 million to EUR 500 million; in the third tier, the Collective State Fund went from approximately EUR 150 million to EUR 300 million.

It is important to underline that out of the four new nuclear liability instruments that resulted from the revision exercise, only two have entered into force so far. The Protocol to the Vienna Convention entered into force on 4 October 2003 and the CSC entered into force on 15 April 2015.

2. Implementation in Belgium

Rules on nuclear third party liability are contained in the Act of 22 July 1985 on Third Party Liability in the Field of Nuclear Energy,⁹⁶ as modified.⁹⁷ This law implements the 1960 Paris Convention and the 1963 Brussels Supplementary Convention as well as its Protocols. The 1985 Act, as modified, lays down the principle of strict liability and limited liability in amount and time, channelled to the operator of a nuclear installation.⁹⁸ In this respect, Article 7 of the law establishes the maximum amount of the operator's liability for nuclear damage at EUR 1.2 billion. A royal decree can increase or reduce this amount in order to fulfill Belgium's international obligations as well as to take into account low risk installations or transport; however, it may not set a level lower than EUR 80 million for transportation and EUR 70 million for the nuclear installations. Pursuant to the terms of the law, the operator is obliged, in

⁹⁶ Wet van 22 juli 1985 betreffende de wettelijke aansprakelijkheid op het gebied van de kernenergie [Act of 22 July 1985 on Third Party Liability in the Field of Nuclear Energy], Jul. 22, 1985, B.S., Aug. 31, 1985, 48087 (Belg.).

⁹⁷ Several decrees have been adopted to implement the 1985 Law, in particular:

Royal Decree of 28 April 1986, determining the financial security certificate for transport of nuclear substances, whose purpose is to ensure that financial security certificates (given to all carriers of nuclear substances by the operator liable) comply with the Paris Convention requirements in this respect, as prescribed by the 1985 Law. Available at: <http://www.ejustice.just.fgov.be/eli/bsluit/1986/04/28/1986011107/justel>;

Ministerial Decision of 9 March 1987 on the register concerning nuclear installations, which aims to implement Section 13 of the 1985 Law regarding the obligation to make available to the public the register containing the texts granting recognition to the operators of nuclear installations. This register contains a certified copy of the royal decrees of recognition and a card of the installations indicating the limits of each site. It may be consulted at the Federal Public Service for Economy, SMEs, Self-Employed and Energy. The local authority for the territory where the installation is located must comply with a similar obligation. Available at: <http://www.ejustice.just.fgov.be/eli/bsluit/1987/03/09/1987011069/justel>.

⁹⁸ See on those principles the discussion in the general framework, *supra* Section II.C.1.

conformity with Art. 10 (a) and (d) of the Paris Convention, to take out insurance or another form of financial security to cover his liability up to the amount set in the law (Article 8). The private insurance market, however, does not have sufficient capacity to complete the totality of such a high liability risk, which the operators nevertheless need to have insured. The problems arise in particular for the coverage of liability claims that might arise more than ten years after the accident, and to a lesser extent, the coverage of damage to the environment. There are insurance policies available for this type of risk, but the coverage amounts offered in the market do not reach the requirement amount of EUR 1.2 billion or – for low risk installations or transport – EUR 297 million. That is why the Act of 29 June 2014 (modifying the Act of 22 July 1985) has introduced a state guarantee, to be enjoyed by the operators of nuclear installations against a fee and insofar as the private insurance market does not offer the coverage (Article 10/1).

Consequently, the Royal Decree of 10 December 2017 establishes a guarantee program for legal liability in the area of nuclear energy.⁹⁹ This Royal Decree was promulgated after the European Commission allowed the program in the framework of Articles 107 and 108 on state support. Since state intervention must be subsidiary to the private market, the premium from the operator to the State has been established at an amount that is higher than the market price; the supplement is situated around 15%. This should encourage operators and insurers to develop insurance solutions instead of appealing on the State. The operators are free to choose their affiliation to the guarantee program and the amount compensated by the State will have to be repaid by the liable operator, as long as this amount does not exceed the liability ceiling laid down in the Act of 22 July 1985. Finally, the damage caused by a nuclear accident should be covered in the first place by the insurance policies of the operator. Only when the amount of the damage exceeds the insured amount, the State should intervene, to the extent of the surplus, to warrant the liable operator in case he fails to compensate.

Article 23 of the law establishes a prescription period of thirty years for nuclear physical injuries and of ten years for other nuclear damage from the date of the nuclear incident in respect of

⁹⁹ Koninklijk besluit van 10 December 2017 tot opstelling van een waarborgprogramma voor de wettelijke aansprakelijkheid op het gebied van de kernenergie [Royal Decree of 10 December 2017 establishing a guarantee program for civil liability in the field of nuclear energy] of Dec. 10, 2017, B.S., Dec. 20, 2017, 113492 (Belg.).

the right to claim financial compensation from the operator. The State is responsible for the payment of compensation in respect of claims for nuclear physical damage which are time barred, within a period between ten and thirty years from the date of the incident. From 1 January 2019 onwards, the State's obligation to compensate will be transferred to the operator.¹⁰⁰

Belgium also ratified the 1971 Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material on 15 June 1989.

D. Terrorism

1. Property Damage

Terrorism risk in Belgium is regulated through an Act of 1 April 2007 which entered into force on 1 May 2008.¹⁰¹ In fact, the Belgian legislator copied the Dutch model of the *Nederlandse Herverzekeringsmaatschappij voor Terrorismeschade* ("NHT"). This was made clear in the preparatory works of the Belgian Act.¹⁰² The Belgian legislator praised the Dutch model for providing a pragmatic solution and held that the insurance market in Belgium is comparable to the situation in the Netherlands, and therefore it found inspiration in the Dutch legislation.¹⁰³

The Belgian Act can be called upon when a dedicated

¹⁰⁰ Koninklijk besluit van 7 december 2017 betreffende de inwerkingtreding van artikel 2, b), van de wet van 7 december 2016 tot wijziging van de wet van 22 juli 1985 betreffende de wettelijke aansprakelijkheid op het gebied van de kernenergie en tot bepaling van de datum bedoeld in artikel 23, vierde lid, van de wet van 22 juli 1985 betreffende de wettelijke aansprakelijkheid op het gebied van de kernenergie [Royal Decree of 7 December 2017 on the entry into force of article 2, b) of the Act of 7 December 2016 amending the Act of 22 July 1985 on civil liability in the field of nuclear energy and to determine the date referred to in article 23, fourth paragraph, of the Act of 22 July 1985 on civil liability in the field of nuclear energy] of Dec. 7, 2017, B.S., Dec. 21, 2017, 114049, Art. 2 (Belg.).

¹⁰¹ Wet van 1 april 2007 betreffende de verzekering tegen schade veroorzaakt door terrorisme [Act of 1 April 2007 on the insurance against damage caused by terrorism] of Apr. 1, 2007, B.S., May 15, 2007, 26350 (Belg.).

¹⁰² Bernard Dubuisson, *L'indemnisation des dommages causés par des actes de terrorisme en Belgique: la loi du 1er avril 2007*, 365 TIJDSCHRIFT VOOR VERZEKERINGEN = BULLETIN DES ASSURANCES (ED. BILINGUE) [BULL.ASS.] 348, 349 (2008).

¹⁰³ During the Parliamentary Proceeding the Belgian Legislator explicitly referred to the benefits of the Dutch model. For details see Dubuisson, *supra* note 102, 349.

Committee has judged that the particular event(s) should be considered a “terrorist act” (Art. 6).¹⁰⁴ In such case, the 2017 Act provides, like the Dutch model, a combined intervention by the insurance company, reinsurers and by the Belgian State. A model has been developed whereby a first layer of financial compensation is provided by all Belgian insurers up to a limit of EUR 300 million. If that amount is insufficient to cover the loss, a second layer will intervene which is provided through the reinsurance market up to an amount of EUR 400 million. Finally, if the amounts provided by the first and second layer of financial compensation would still be insufficient the Belgian State intervenes up to a limit of EUR 300 million, like in the Dutch system.¹⁰⁵ The total amount of compensation (not indexed) is hence constituted as follows:

Insurers	EUR	300	million
Reinsurers	EUR	400	million
Belgian State	EUR	300	million
Total	EUR	1	billion

An insurance pool, called the Terrorism Risk Insurance Pool (“TRIP”) is created, that will manage the terrorism risk. Although the scheme is not compulsory it has attracted more than 95% participation from amongst the insurers operating in Belgium. The Belgian legislator considered that the creation of the TRIP was a necessity.¹⁰⁶ The Belgian State only intervenes after the insurers and reinsurers have provided compensation and only if the amount of compensation provided by such groups (a

¹⁰⁴ The Committee declared, in its decision of 19 September 2017, the events of 17 August 2017 in Barcelona (Spain) a terrorist attack. A similar decision has been made, on 29 June 2017, regarding the events of 7 April 2017 in Stockholm (Sweden). This was also the case, *inter alia*, for the events of 14 July 2016 in Nice (France), the events of 6 August 2016 in Charleroi (Belgium), the events of 20 November 2015 in Hotel Radisson Blu in Bamako (Mali), and the events of 22 March 2016 in Brussels (see: *Comité voor schadeafwikkeling bij terrorisme*, 28 April 2016). These decisions of the Committee have all been published in the official Belgian Gazette B.S.

¹⁰⁵ See Dubuisson, *supra* note 102, at 353-54 for details.

¹⁰⁶ OECD INT’L PLATFORM ON TERRORISM RISK INS., BELGIUM – TERRORISM RISK INSURANCE PROGRAMME (2016), <https://www.oecd.org/daf/fin/insurance/Belgium-Terrorism-Risk-Insurance.pdf>. It should be noted that most insurance policies obligatorily cover terrorist damage, including occupational accident insurance, life insurance, hospitalization insurance, accident insurance, fire insurance and civil liability car insurance.

total of EUR 700 million) would not be sufficient to cover the loss. Moreover, the reinsurance layer provided by the Belgian State is, like in the Dutch example, not provided for free, but the Belgian State is compensated for this intervention. It was held that this was necessary to avoid the prohibition of state aid contained in European law.¹⁰⁷

Legal doctrine in Belgium holds that this financial compensation of terrorism related damage via the creation of a pool has been effective in covering terrorism-related risks. The public-private partnership between insurers, reinsurers, and the State is praised for providing relatively large amounts of cover (EUR 1 billion) in three layers.¹⁰⁸

The 2007 Act mainly aims at compensating damage to persons (Article 7 paragraph 2), and compensation of damage to property is hence limited. In particular, damage to industrial property, including contents located at a single company site, will be compensated up to EUR 75 million per insured and per year. Further, there is also a compensation percentage that is applied to pay-outs. The percentage rates are worked out using three broad headings which consist of one percentage rate for personal injury, one percentage rate for material damage, and one percentage rate for moral damage. The deductible is 10% of the damage cost where damage from a terrorist act has occurred to industrial business and a 10% deductible is applied to damages which are caused through a nuclear bomb for risks other than motor vehicle third party liability, strict liability for public places, workmen's compensation insurance, life insurance, and health insurance.

2. Personal Injury

It cannot be excluded that some victims of terrorism will not receive any compensation through TRIP because the conditions in their insurance contract are not fulfilled. In order to remedy this situation, the Act of 1 August 1985 on Fiscal and Other Provisions¹⁰⁹ has been supplemented by a special subchapter on governmental help for victims of acts of deliberate violence. The Fund for Intentional Acts of Violence can pay out compensation to the uninsured victims who are confronted with

¹⁰⁷ See Dubuisson, *supra* note 102, at 354-355 (doubting whether a compensation to victims of disasters could effectively be considered as a prohibited state aid).

¹⁰⁸ *Id.* at 362.

¹⁰⁹ Wet houdende fiscale en andere bepalingen [Act on Fiscal and Other Provisions] of Aug. 1, 1985, B.S., Aug. 6, 1985, 37751.

personal or physical damages.¹¹⁰ However, the government has the ability to increase this sum after a terrorist attack (Art. 37bis). In order for the government to increase the sum of compensation, the King must declare the event an act of terrorism (Art. 42bis).¹¹¹

The Fund is financed by fixed contributions of all persons sentenced to a criminal or misdemeanour penalty (Art. 29), but, if necessary, extra contributions can be requested. Generally, extra contributions are requested from the Treasury, loans, gifts and legacies, a part of the profits of the National Lottery, and other sources of revenue determined by the King (Art. 42bis).

3. The Aftermath of the Terrorist Attack on Brussels Airport

On 22 March 2016, several terrorist attacks were committed in and around Brussels (in particular, in Brussels Airport and in the Brussels metro) where a total of 35 persons were killed. The damage resulting from the attacks in Zaventem and Molenbeek falls under the scope of the Act of 1 April 2007 and is being evaluated for a total of EUR 168 million. The distribution of this amount is estimated as follows: damage to persons 80%, material damage 15%, and non-pecuniary loss 5%.¹¹² The amount remains well below the maximum threshold, EUR 1 billion, provided for in the Act of 1 April 2007.

Following the attacks, the Act of 30 May 2016 was adopted, which amended the Act of 1 August 1985 on Fiscal and Other Provisions with regard to assistance to victims of deliberate acts of violence.¹¹³ The 2016 Act has introduced the following

¹¹⁰ Of course, these victims will also receive compensation for their personal injury from social security.

¹¹¹ See, e.g., Koninklijk besluit tot erkenning van daden als daden van terrorisme in de zin van artikel 42bis van de wet van 1 augustus 1985 [Royal decree recognizing acts as acts of terrorism in the sense of article 42bis of the Act of 1 August 1985] of Mar. 15, 2017, B.S., Mar. 17, 2017, 37771, which declares a list of events that took place between 2012 and 2017 (amongst which the attacks on Brussels Airport on 22 March 2016) as an act of terrorism.

¹¹² See BELGIAN CHAMBER OF REPRESENTATIVES, SCHRIFTELIJKE VRAAG EN ANTWOORD NR: 0887, TUSSENKOMST VERZEKERINGEN BIJ TERRORISME (June 8, 2016), <https://www.dekamer.be/kvvcr/showpage.cfm?section=qrva&language=nl&-cfm=qrvaXml.cfm?legislat=54&dossierID=54-b082-861-0887-2015201610033.xml>.

¹¹³ Wet tot wijziging van de wet van 1 augustus 1985 houdende fiscale en andere bepalingen, wat de hulp aan slachtoffers van opzettelijke gewelddaden betreft [Act amending the Act of 1 August 1985 on fiscal and other provisions, as regards assistance to victims of deliberate acts of violence], of May 31, 2016,

changes:

- a. The ceilings for financial compensation have been doubled. Compensation will be awarded when the damage amounts to more than EUR 500 and up to EUR 125,000.
- b. Certain conditions have been relaxed or were even deleted when compensation is requested for damage related to terrorist attacks. In this specific context, it is not necessary to deposit a complaint or to apply for civil party status first.
- c. Belgian victims of acts of terrorism in a country that does not provide a settlement for these types of events can also appeal to the Fund for Intentional Acts of Violence.

A Commission for financial assistance to victims of acts of deliberate violence and occasional rescuers has been established. This Commission deliberates on the applications for emergency aid,¹¹⁴ financial compensation or additional assistance.¹¹⁵ A subsection of the Commission is specialized in dealing with applications from victims of terrorist attacks.

It should be noticed that the contribution by the State has a subsidiary character: the victim should not be able to receive sufficient compensation for his damage in any other way. Therefore, the Commission takes into account:

- the solvency and the potential instalments of the aggressor;
- the contribution of the health insurance fund or the work accident insurance institution;
- a possible compensation in the framework of a private insurance.

The Commission can grant equitable assistance, but does not guarantee a full compensation.

Two months after the attacks, victims were officially notified of the first emergency aid decisions and the first payments were made.¹¹⁶ Nevertheless, one year after the terrorist

B.S. June 17, 2016, 36657.

¹¹⁴ Emergency aid can be requested when any delay in the granting of compensation may cause the applicant a serious disadvantage, have regard to his financial situation. The emergency aid is granted per intentional act of violence and per applicant for damage in excess of EUR 500 and is limited to an amount of EUR 30,000.

¹¹⁵ The Commission can award additional assistance if the disadvantage has apparently increased after the compensation has been granted.

¹¹⁶ FEDERALE OVERHEIDSDIENST JUSTITIE, EEN UNIEK LOKET VOOR DE

attacks, many victim organizations have complained about the slow payment of damages and the administrative burden.¹¹⁷ Following the Belgian regulation, the financial compensation of material and non-material damage caused by terrorism is primarily a task for insurance companies. Because these insurance companies can take a long time to determine the exact damage, the Commission can give an advance of up to EUR 30,000 in urgent cases (i.e. the emergency aid). The first figures show that the insurance companies have put aside EUR 136 million for the payment of the compensation, but have only paid out EUR 16 million. In March 2017, more than half of the victims were still waiting for part of their compensation, and a quarter of the victims had not received anything at all. The Commission paid out EUR 1.2 million in advances and helped 160 victims, while 398 applications were received.

In addition, following the Act of 18 July 2017, Belgians who are victims of a terrorist attack will receive a lifelong pension.¹¹⁸ They get their own “statute of national solidarity” that is comparable to the statute of civilian victims from World War II. As a result, in addition to the right to a benefit/pension, they also receive a full reimbursement of their medical costs as long as such costs are neither covered by insurance nor by the Fund for Intentional Acts of Violence.

E. Summary

In summary, Belgium has gone through an interesting evolution and many steps have been taken in recent years. As far as the natural disasters are concerned, Belgium started from a model of national solidarity via the Disaster Fund. With the statutes of 2003 and 2005, however, the role of that Disaster Fund has been seriously reduced. Belgium de facto followed the French model by mandatorily adding first party cover for a large group

SLAACHTOFFERS VAN DE AANSLAGEN IN BRUSSEL (June. 1, 2016), https://justitie.belgium.be/nl/nieuws/andere_berichten_27.

¹¹⁷ Leen Vervaeke, *Belgische terreurslachtoffers naar de rechter om trage uitbetalingen verzekeraar*, DE VOLKSKRANT (Mar. 20, 2017), <https://www.volkskrant.nl/buitenland/belgische-terreurslachtoffers-naar-de-rechter-om-trage-uitbetalingen-verzekeraar~a4476798/>.

¹¹⁸ Wet betreffende de oprichting van het statuut van nationale solidariteit, de toekenning van een herstelpensioen en de terugbetaling van medische zorg ingevolge daden van terrorisme [Act on the establishment of the statute of national solidarity, the granting of a recovery pension and the reimbursement of medical care due to acts of terrorism], of Jul. 18, 2017, B.S., Aug. 4, 2017, 77667.

of natural disasters to voluntarily purchased fire insurance. As far as technological disasters are concerned, it is striking that Belgium has a large amount of mandatory solvency guarantees, forcing operators to seek financial cover for the consequences of their liability. Moreover, since 2012, Belgium also has a specific model for rapid claims settlement in case of technological disasters.

With regard to the nuclear risk, Belgium implemented the Nuclear Liability Conventions. The operators' liability is now capped at the total amount of EUR 1.2 billion; in addition there is a substantial state guarantee. The terrorism risk in Belgium is regulated through the Act of 1 April 2007 which created TRIP, and provides a total amount of compensation of EUR 1 billion on the basis of a system of multi-layered compensation. Recently, TRIP had to be applied after the 22 March 2016 terrorist attack on the Brussels airport. TRIP mainly intervenes for property damage. As far as personal injury is concerned, there is another statute of 1985 that provides compensation to victims after a terrorist attack. Following the Brussels airport attacks, the statutory framework has once more been changed with the Act of 18 July 2017, providing *inter alia* for a life-long pension for victims of a terrorist attack.

Belgium has a mix whereby on the one hand the French solidarity model is followed, providing generous compensation (first via a Disaster Fund for victims of natural disasters, covering equally personal injury resulting from the terrorism risk). At the same time it also obliges operators, via a combination of strict liability and mandatory liability insurance to provide proof of their solvency, thus equally stressing the importance of exposing potential injurers to the social costs of their activity.

III. FRANCE

A. Natural Disasters

1. Mandatory Comprehensive Cover

France has an elaborate system of first party insurances for property damage. Eighty-five percent of all inhabitants of France own first party insurance,¹¹⁹ and therewith a right to financial compensation for property damage within the scope of

¹¹⁹ This can be deduced from the AZF case, where it was noticed that only 15% of the victims were uninsured.

the insurance policy. A typical example of such a policy is the so-called *multi-risques habitation* which is commonly requested as a precondition for renting a premise, and which covers most risks with respect to real estate and movable property within the house.

In addition to voluntary first party insurance, which covers damage against property, the French system typically also includes, through the Act of 13 July 1982 ("the 1982 Act"),¹²⁰ a mandatory additional cover for the consequences of natural disasters. This constitutes France's well-known and internationally praised example of mandatory comprehensive disaster insurance.¹²¹ In France, there is, therefore, no generalized duty to insure catastrophic risks, but the compulsory coverage extension of voluntarily subscribed property insurance contracts. Property damage policies in France are widespread and, consequently, a large group of individuals are forced to pay an additional amount for the coverage of natural disasters.

The 'Code des Assurances' offers a definition of what is considered a natural disaster. Remarkably, the Code defines a natural disaster as an accident that causes damage which is unusual, unavoidable, and normally not insurable.¹²² The fact that this damage would normally not be insurable is precisely the reason for the mandatory additional coverage. Indeed, the French Insurance Code defines loss resulting from natural catastrophes as "non insurable direct material damage whose determining cause was the abnormal intensity of a natural agent. . ." (Art. L. 125-1 par 3). Lawyers have criticized this definition since it seems confusing to call uninsurable a risk that the law makes insurable by compulsory coverage.¹²³ The paradox, however, disappears if one realizes that compulsory insurance allows for a sufficient spreading of risks and functions as a remedy to adverse selection,

¹²⁰ Loi 82-600 du 13 juillet 1982 relative à l'indemnisation des victimes de catastrophes naturelles [Law 82-600 of July 13, 1982 concerning compensation for victims of natural disasters], JOURNAL OFFICIEL DE LA REPUBLIQUE FRANÇAISE [J.O.] [OFFICIAL GAZETTE OF FRANCE], Jul. 14, 1982, p. 2242.

¹²¹ See Kunreuther, *supra* note 19 (already arguing in 1968 in favour of comprehensive disaster insurance and repeating it many times since, e.g. after Katrina); Howard Kunreuther, *Has the Time Come for Comprehensive Natural Disaster Insurance?*, in ON RISK AND DISASTER: LESSONS FROM HURRICANE KATRINA 175 (Ronald J. Daniels, Donald F. Kettle & Howard Kunreuther eds., 2006).

¹²² Michel Cannarsa, Fabien Lafay & Olivier Moréteau, *France, in FINANCIAL COMPENSATION FOR VICTIMS OF CATASTROPHES: A COMPARATIVE LEGAL APPROACH*, *supra* note 1, at 86; BRUGGEMAN, *supra* note 1, at 304.

¹²³ Cannarsa, Lafay & Moréteau, *supra* note 122, at 86.

which may make natural disasters uninsurable. By imposing a duty to insure, the law transforms an uninsurable risk into an insurable one. Compulsory insurance may enable the private insurance market to cover harm caused by natural disasters in geographically limited areas. Floods and earthquakes are clear examples, but the French compulsory disaster insurance coverage also extends to droughts, cyclonic storms, terrorist attacks, and technological catastrophes.

Insurers are only held liable to compensate damage if the government declares a certain incident a natural disaster. This is an administrative act that can also give rise to an administrative appeal.¹²⁴ The declaration of the event as a natural disaster is published in the *Journal Officiel*. From the date of that publication the victim only has ten days to file a claim with his insurer. This very short time limit aims to pressure the victim to act carefully and to allow the insurer's experts to establish the extent of the damage as soon as possible. The *Code des Assurances* further stipulates that the insurer must make an offer of financial compensation within three months after the victim's claim. Moreover, the insurer must also make an advance payment within a period of two months.¹²⁵ Agricultural damage is excluded.

The supplementary coverage for catastrophic loss is financed through an additional premium of twelve percent on all insurance contracts covering property other than motor vehicles, and an additional premium of six percent for fire and theft insurance for motorised land vehicles.¹²⁶ The mandatory coverage is applied to all insured individuals, irrespective of whether they are particularly vulnerable to natural disasters and thus exposed to the insured risk. The Act of 13 July 1982 further includes compulsory deductibles together with a prevention plan; these are Risk Exposure Plans, which today have become Risk Prevention Plans. The links between financial compensation and prevention have been strengthened by a sliding scale that adjusts the deductibles applying to communes that do not have Risk Prevention Plans, to encourage them to introduce such plans.

Reinsurance is provided through the *Caisse centrale de réassurance*, which is fully controlled by the French State.¹²⁷

¹²⁴ *Id.* at 95.

¹²⁵ *Id.* at 96.

¹²⁶ Art. 2 of the 1982 Act stipulates that the catastrophe guarantee is financed by an additional premium calculated on the basis of a single rate set by Decree for each category of insurance policy.

¹²⁷ See Roger Van den Bergh & Michael G. Faure, *Compulsory insurance*

There are particular features of the French system which are potentially at odds with European competition law. It has been argued that those anti-competitive effects may, to some extent, benefit from the efficiency defence: the need to create sufficiently large risk pools and to cure the problem of adverse selection may justify the tying clause (the fact that catastrophe cover is mandatorily provided with housing insurance). Other features of the compulsory insurance scheme for catastrophic loss in France, such as the fixed premiums for the disaster coverage and the reinsurance by the State, may benefit from a solidarity exception.¹²⁸

2. Example: The 2016 Floodings

May and June of 2016 was marked by a major, atypical, natural catastrophe, i.e. the flooding of the Seine and its tributaries, and of some tributaries of the Loire. It was declared a natural catastrophe by *Arrêté du 8 juin 2016 portant reconnaissance de l'état de catastrophe naturelle*. About 182,000 claims have been reported, and it cost insurers more than EUR 1.4 billion, being the most expensive flood since 1982. The resulting cost to the CCR amounts to EUR 623 million which represents the second largest loss – the largest flood event – ever recorded since the inception of the natural disaster compensation scheme in 1982. A major portion of the impact on CCR's underwriting results was, however, offset due to a capital equalization reserves release of EUR 240 million.¹²⁹

The floods led to the interruption of several transportation networks and also put into question the ability of the crisis management system to respond to an event of a higher

of loss to property caused by natural disasters: competition or solidarity? 29 WORLD COMPETITION, no. 1, 2006, at 25, 30. The European Commission approved on 26 September 2016 both the principles and the terms of the natural disaster reinsurance scheme operated in France by the Caisse Centrale de Réassurance (CCR). In particular, the Commission approved the guarantee granted to CCR by the State in this capacity on an exclusive basis. The Commission considers that this guarantee does not constitute a state aid incompatible with the European internal market rules given that “the French natural disaster compensation system is proportionate” and that “it enables each household and business to be insured against these risks”.

¹²⁸ Van den Bergh & Faure, *supra* note 127.

¹²⁹ CAISSE CENTRALE DE REASSURANCE [CCR], 2016 ACTIVITY REPORT (2016), <https://www.ccr.fr/documents/23509/29244/Activity+report+2016+CCR+EN.pdf/af04f3a2-2ef4-4b8b-ad39-d2b9a3f32b1c>.

magnitude.

B. Technological Disasters

1. Liability

Although the fault regime is still the central rule in French tort law, several strict liabilities have been developed. The French *Cour de Cassation* ruled that Article 1384, paragraph 1 of the Civil Code which holds the guardian of a defective object liable for the damage caused by that object, should be considered as a general stand-alone provision, providing for a presumption of responsibility where damage is caused by objects.¹³⁰ This article has been interpreted very broadly in French law: strict liability is imposed on the sole basis of the use, direction and control by the defendant of the object which caused the damage. Moreover, there are also separate statutes laying down strict liability in various areas (e.g. strict liability for car drivers causing a road traffic accident).

In addition, there is far-reaching tort liability for public authorities under French administrative law. Public authority liability has already been accepted in France, for example, at the occasion of a disastrous flooding at Grand-Bornand on 14 July 1987, which caused the death of 23 persons in addition to substantial property damage. It led to a joint liability of the State and the municipality.¹³¹

French law also has an interlocutory proceeding, the so-called *référé*, which allows the victim to seek a provisional order from a single judge within a short period of time (also outside of cases of urgency). This procedure is also applied to obtain provisional payment when the debt cannot be disputed. It will therefore allow a victim to obtain in practice 80% of what may be regarded as fair compensation.¹³²

2. Act of 30 July 2003

There is another particular feature of the way in which French law deals with compensation for technological disasters. The creation of this Act is related to an accident that happened in France on 21 September 2011 (incidentally ten days after 9/11, but totally unrelated) at the chemical plant called AZF owned by

¹³⁰ Cannarsa, Lafay & Moréteau, *supra* note 122, at 92.

¹³¹ BRUGGEMAN, *supra* note 1, at 297-98.

¹³² Cannarsa, Lafay & Moréteau, *supra* note 122, at 98-99.

Total Fina Elf in Toulouse where thirty people died, 5,000 suffered personal injury, and substantial property damage was caused.¹³³ Most victims obtained financial compensation through their first party insurance; others claimed compensation from the liable operator, Total Fina Elf. Since the property damage insurance (*multi-risques habitation*) is not mandatory, however, some victims were uninsured (in first party insurance) and therefore had to sue the operator of the plant in tort law.¹³⁴ That was the reason for the French legislator to extend, through the Act of 30 July 2003,¹³⁵ the first party insurance coverage like the one provided by the *multi-risques habitation* to damage caused by industrial catastrophes. In particular, if an official statement is made that there is a "situation of technical catastrophe" occurring from an "*installation classée*", causing damage to a large number of buildings, the coverage of the first party motor vehicle and housing insurance extends to risks linked to these technological catastrophes (Art. L-128-1 Code des Assurances¹³⁶). It is striking that although this concerns technological (and therefore man-made) disasters, the Act does not apply to third party insurance, but to property damage caused by technological disasters, except for terrorist attacks. In this case, the compulsory disaster cover is (again, like in the case of natural disasters) linked with voluntarily subscribed first party property insurance contracts. All insured undergo an increase in their premiums, irrespective of whether they are exposed to a technological risk. In contrast with the regime that was created for the compensation of damage resulting from natural disasters, the legislator did not find it useful to install a premium percentage. It is as such remarkable that in a case of a man-made technological disaster, where a liable wrongdoer can be identified, a mandatory cover for victims is introduced. Imposing solvency guarantees on the side of the wrongdoer, such as compulsory liability insurance, could be a preferable solution.¹³⁷

For uninsured victims a compensation fund is created to

¹³³ *Id.* at 115; BRUGGEMAN, *supra* note 1, at 326-28.

¹³⁴ *Id.*

¹³⁵ Loi 2003-699 du 30 juillet 2003 relative à la prévention des risques technologiques et naturels et à la réparation des dommages [Law 2003-699 of July 30, 2003 concerning the prevention of technological and natural risks and compensation of damages], J.O., Jul. 31, 2003, p. 13021. This Act introduced a new chapter in the French Insurance Code, namely arts. L.128-1 to 128-4.

¹³⁶ Code des assurances [Insurance Code], available at: <https://www.legifrance.gouv.fr/affichCode.do?cidTexte=LEGITEXT000006073984>.

¹³⁷ Van den Bergh & Faure, *supra* note 127, at 30.

compensate for the consequences of technological catastrophes. It was technically done by extending the benefits of the compensation fund for victims of automobile accidents (*fonds de garantie*) through the Act of 30 July 2003 to all uninsured victims of industrial disasters (Article L.421-16 Code des Assurances) – regardless of whether insurance was actually available.¹³⁸ Compensation will be limited at EUR 100,000 (Article R.421-78 Code des Assurances). This limited compensation will hence give incentives to still insure against the risk of damages.

C. Nuclear Accidents

French law on third party liability in the field of nuclear energy is derived from a combination of, on the one hand, the Paris Convention and the Brussels Supplementary Convention which under the Constitution are directly integrated into the domestic legal system on ratification and, on the other hand, Act No. 68-943 of 30 October 1968,¹³⁹ as amended, on third party liability in the field of nuclear energy.

The legal regime introduced by the Paris Convention and adopted in the Act of 30 October 1968 introduced into French law the principle of strict liability on the nuclear operator regardless of fault. This strict liability regime relieves the victim of the burden of proving the liability of the operator and makes the operator strictly liable for damage to or loss of life of any person, and damage to or loss of any property caused by any nuclear accident occurring in his installation or during transport on his behalf. It is relevant to State, however, that the Paris Convention does allow the operator to have a conventional right of recourse against another party to a contract if the accident was caused by an intentional act or omission, but this may not operate against the victim.

The liability of the operator is limited to:

- EUR 91,469,410 for an accident occurring in an installation (Art. 4 Act No. 68-943);
- EUR 22,867,353 for transport or a low-risk installation (Art. 4 Act No. 68-943).

Over and above the amount of the operator's liability, victims are compensated under the conditions and within the limits laid down by the Brussels Supplementary Convention:

¹³⁸ Cannarsa, Lafay & Moréteau, *supra* note 122, at 88.

¹³⁹ Loi 68-943 du 30 octobre 1968 relative à la responsabilité civile dans le domaine de l'énergie nucléaire [Law 68-943 of October 30, 1968 on third party liability in the field of nuclear energy], J.O., Oct. 31, 1968, p. 10195.

- up to 175 million SDR (EUR 215 million or USD 244 million) by the State in whose territory the installation is located;
- up to 300 million SDR (EUR 368.30 million or USD 418.20 million) by the Contracting Parties to this Convention, including France, whose own financial contribution under the method of calculation used currently stands at approximately 34%.

Article 7 of the Act of 30 October 1968 requires each operator to have and maintain insurance or other financial security for an amount corresponding to his liability for an accident. This financial security must be approved by the Minister of Economy and Finance. Should the victims of a nuclear accident be unable to obtain financial compensation for their damage from the insurer, financial guarantor or operator, the compensation burden shifts to the State up to the amount of EUR 91,469,410 without prejudice to any possible additional amounts.

Protocols amending the Paris and Brussels Conventions were signed in Paris on 12 February 2004. Although these Protocols have yet to enter into force, their approval was authorized in France by Act No. 2006-786 of 5 July 2006.¹⁴⁰ They have already been transposed into national law (Article 55 of Act No. 2006-686 of 13 June 2006 on nuclear transparency and safety,¹⁴¹ whose provisions will be applicable upon entry into force of the Protocol amending the Paris Convention) in order to bring French law into line with the new legal regime thus introduced. Once the Protocol amending the Paris Convention enters into force, the maximum liability of the operator is set at EUR 700 million for nuclear damage caused by each nuclear accident (see Art. L-597-4 Ordonnance no 2012-6 du 5 janvier 2012 modifiant les livres Ier et V du code de l'environnement).

¹⁴⁰ Loi 2006-786 du 5 juillet 2006 autorisant l'approbation d'accords internationaux sur la responsabilité civile dans le domaine de l'énergie nucléaire [Law 2006-786 of July 5, 2006 authorizing the approval of international agreements on third party liability in the field of nuclear energy], J.O., Jul. 6, 2006, p. 10115.

¹⁴¹ Loi 2006-686 du 13 juin 2006 relative à la transparence et à la sécurité en matière nucléaire [Law 2006-686 of June 13, 2006 on transparency and nuclear safety], J.O., Jun. 14, 2006, p. 8946.

D. Terrorism

1. Property Damage

Property coverage against attacks and acts of terrorism has been compulsory for all property insurance policies since the Act of 9 September 1986.¹⁴² Under Article L 126-2 of the Code des Assurances, insurance contracts guaranteeing fire damage to property as well as damage to motorized land vehicles are mandatorily extended to cover direct material damage to the insured property caused by a terrorist attack or act of terrorism sustained on national territory. The repair of material damage, including decontamination costs, and the repair of non-material damage resulting from such damage are covered within the limits of the deductible and the ceiling set in the fire insurance contract. Different limits and excesses may be agreed in the case of large risks¹⁴³ (paragraph 2 of Article L 111-6 of the Code des Assurances).

The terrorist attacks and acts of terrorism referred to in the Code des Assurances are the offenses defined by Articles 421-1 and 421-2 of the French Criminal Code and extends to acts of terrorism committed using nuclear, biological, chemical, or radiological (NBCR) weapons. In addition, following the introduction of the Act of 23 January 2006,¹⁴⁴ coverage also includes any material damage sustained on national territory that may result from an attack perpetrated outside its borders, such as contamination by chemical agents; cyber terrorism is also covered.

In 2002, the *Gestion de l'Assurance et de la Réassurance des Risques Attentats et Actes de Terrorisme* ("GAREAT")

¹⁴² Loi 86-1020 du 9 septembre 1986 relative à la lutte contre le terrorisme et aux atteintes à la sûreté de l'Etat [Law 86-1020 of September 9, 1986 on combating terrorism and attacks on national security], J.O., Sep. 10, 1986, p. 10956.

¹⁴³ Large risks are "those relating to fire and natural elements, other damage to property, general civil liability, various pecuniary losses, hulls of land motor vehicles as well as civil liability, including that of the carrier pertaining to these vehicles, when the policyholder carries out an activity whose importance exceeds certain thresholds defined by decree taken after consultation of the Council of State" (paragraph 2 of Article L 111-6 of the Code des Assurances)

¹⁴⁴ Loi 2006-64 du 23 janvier 2006 relative à la lutte contre le terrorisme et portant dispositions diverses relatives à la sécurité et aux contrôles frontaliers [Law 2006-64 of January 23, 2006 on combating terrorism and laying down various provisions relating to security and border controls], J.O., Jan. 24, 2006, p. 1129.

reinsurance pool was created jointly by insurers, reinsurers and the *Caisse Centrale de Réassurance*.¹⁴⁵ The GAREAT program is divided into two sections: the Large Risks section and the Small Risks section. Large risks are defined as risks for which the sums insured amount to EUR 20 million or more. The GAREAT program is further divided into layers:

- a. the first layer consists of co-reinsurance between the members of the pool (EUR 500 million in annual aggregate);
- b. the next layers (of each EUR 500 million in annual aggregate) consist of reinsurance by international professional reinsurers up to the level at which the French State intervenes;
- c. the top layer (in excess of EUR 2,520 billion) consists, for the Large Risks section, of unlimited reinsurance granted by the CCR with a guarantee from the French State.¹⁴⁶

A market agreement requires insurers affiliated with the two French professional insurance bodies, FFSA and GEMA, to cede their terrorism risks systematically to GAREAT's Large Risks section. All other French or foreign insurers authorized to cover such risks may likewise join GAREAT's Large Risks section on an individual basis. CCR supplements GAREAT's Large Risks program by providing unlimited state-guaranteed coverage beyond the above limit. CCR receives a premium for providing unlimited state cover with a state guarantee (i.e. 10% of the annual premiums collected by insurers).

GAREAT reinsurance rates depend upon the sum insured of each risk ceded (with the exception of the premium on nuclear risks, which is 24% regardless of the sums insured). GAREAT rates apply to the property premium of the risks ceded individually to GAREAT:

- insured value between EUR 20 million and < EUR 50 million: 12% rate;
- insured value ≥ EUR 50 million: 18% rate.

The 2015 premium estimated income of GAREAT Large risks section is EUR 200 million.¹⁴⁷ This figure has remained

¹⁴⁵ In 2015 GAREAT federates 197 members, including ten insurance captive companies of large corporations (which have direct membership) and 60 Lloyd's Syndicates with which GAREAT deals through their representation office in Paris.

¹⁴⁶ The unlimited coverage is granted under a global Stop Loss reinsurance treaty reinsured 100% by *Caisse Centrale de Réassurance* (CCR).

¹⁴⁷ OECD INT'L. PLATFORM ON TERRORISM RISK INS., FRANCE –

stable for several years and reflects an average 15% rate on property policies. Private and public reinsurance accounts for around 30% of the premium, which is a significant decrease since the scheme's inception due to the fact that the reinsurance market has become more competitive in this field.¹⁴⁸ At the close of the underwriting year, GAREAT – being a non-funded pool – gives back to the members the residual premiums, after deduction of the cost of reinsurance, the cost of the CCR Unlimited Treaty, the claims, and the management fees.

2. Personal Injury

The Guarantee Fund for victims of terrorism and other criminal acts, the *Fonds de garantie des victimes des actes de terrorisme et d'autres infractions* ("FGTI"), was created in 1986 to compensate for bodily harm resulting from acts of terrorism, and to provide assistance to victims of offences under ordinary law.¹⁴⁹ The Fund is financed by a contribution levied on property insurance policies.¹⁵⁰ Articles L. 422-1 to 6 2 and R. 422-1 to 10 3 of the Insurance Code deal with the organization and financing of the FGTI.

Since its creation, French or foreign victims of terrorist acts occurring in France on or after 1 January 1985 and French victims of acts of terrorism occurring abroad can request compensation from the FGTI following a special procedure. When the authorities pass on information regarding the circumstances surrounding the terrorist act and the identity of the

TERRORISM RISK INSURANCE PROGRAMME (2016), 6, <https://www.oecd.org/daf/fin/insurance/France-Terrorism-Risk-Insurance.pdf>.

¹⁴⁸ INT'L FORUM FOR TERRORISM RISK (RE)INS. POOLS, WORLD TERRORISM INSURANCE POOLS AND SCHEMES, June 2017, 27, <http://iftrip.org/wp-content/uploads/2017/02/IFTRIP-brochure-final.pdf>.

¹⁴⁹ See Loi 86-1020 du 9 septembre 1986 relative à la lutte contre le terrorisme et aux atteintes à la sûreté de l'Etat, as amended by the loi 90-589 du 6 juillet 1990 modifiant le code de procédure pénale et le code des assurances et relative aux victimes d'infractions [Law 90-589 of July 6, 1990 amending the Code of Criminal Procedure and the Insurance Code and concerning victims of crimes], J.O., Jul. 11, 1990, p. 8175.

¹⁵⁰ The Guarantee Fund is 75% funded by a lump sum contribution of EUR 4.30 (in 2016) from each property insurance contract taken out with a company operating in France. The resources of the FGTI are, if necessary, supplemented by the reimbursement of the indemnities that the Fund obtains from the perpetrators of the offenses that caused the compensated damage (20%) and by financial investments (5%). In January 2017, the amount of the tax on insurance contracts is increased to EUR 5.90 per contract corresponding to EUR 140 million of additional revenue for the FGTI.

victims to the FGTI, the Fund's dedicated terrorist victim compensation team contacts victims directly. It helps the identified victims to put together their application and strives to make funds available quickly in order to cover any initial costs. The Fund sets out a compensation proposal to victims within three months of a definitive assessment of the damage having been determined. Victims will be fully compensated for bodily harm, usually after an assessment by a doctor designated by the Guarantee Fund. If directly related to the act of terrorism, clothing expenses are also reimbursed up to a certain limit by the Guarantee Fund on presentation of supporting documents. Payments received from other sources for the same losses (e.g. national insurance or a mutual insurance scheme) will be deducted from the financial compensation paid by the Guarantee Fund.

In 2015, the FGTI made payments totalling EUR 328.8 million to victims of terrorism and other offences. It should be noted that, contrary to Belgium, the French government pays for all damages and later claims them back from the insurers.

3. Example I: The Terrorist Attacks in Paris

Six terrorist attacks took place on 13 November 2015 in Paris. During the attacks, 129 people were killed and more than 350 wounded. President Hollande called on all Member States of the European Union to offer assistance to France. He referred to Article 42 (7) of the EU Treaty, which states that if a Member State is attacked on its own territory, the other countries have the duty to "provide help and assistance by all means available to them". This was the first time in the history of the European Union that a Member State relied on the article. On 17 November, all 28 EU Member States unanimously agreed with the request for help. The Member States were allowed to decide for themselves how they implemented the aid.

It is to be noted that the Guarantee Fund's articles state that anyone who, at the time of the attack, was within a government-determined perimeter of a terrorist attack, may call himself a victim, even without being physically injured. The Fund's clause seems to have unintentionally created a new market – more and more people know how to find their way to the Fund and claim to be victims of a terrorist attack. Indeed, among the 2,579 people who have received compensation from the state-run Fund, "1,218 claimed compensation for psychological injuries sustained in the attacks, 576 claimed

compensation for physical injuries sustained in the attacks and 758 are family members of people who were killed in the attacks".¹⁵¹ Victims of the attack on 13 November received, in respect of the provisions paid by the FGTI, EUR 64 million. In November 2017, 947 victims out of 2,579 have been the subject of a final offer of compensation.

There is also controversy over the amounts allocated, and critics argue that the operation of the FGTI is "too old and bureaucratic". The FGTI is now engaged in improving its services and, on 26 September 2017, its Board of Directors decided to recognize "anguish" as a form of suffering. Anguish is compensated with a minimum lump sum of EUR 10,000.¹⁵²

It is expected that the November attacks in Paris will lead to claims worth EUR 350 million in the coming years. Several newspaper articles claim that the Guarantee Fund has been depleted.

4. Example II: The Terrorist Attacks in Nice

On the evening of 14 July 2016, a nineteen ton cargo truck was deliberately driven into crowds of people celebrating Bastille Day on the Promenade des Anglais in Nice, France. The attack resulted in the death of 86 people and the injury of 458 others.

Following the attack, the FGTI received 2,966 requests, and 1,609 victims received a compensatory response by July 2017. Nearly 98% of victims have been compensated. The first compensation provisions were paid within ten days.¹⁵³ Family members of victims who died in Nice can count on a compensation of EUR 40,000. Those who were injured are reimbursed according to the severity of their injuries. At the end of July 2017, the French government had already paid around

¹⁵¹ Romina McGuinness, *France pays 64 million euros to victims of Paris Bataclan terror attacks*, EXPRESS (Nov. 7, 2017), <https://www.express.co.uk/news/world/876648/paris-bataclan-terror-attack-victims-france-pay-millions-euros>. The article quotes a spokesperson for the Guarantee Fund for Victims of Terrorist and Other Criminal acts.

¹⁵² Aurélie Abadie, *Terrorisme: 64 M€ déjà versés aux victimes de l'attentat du Bataclan*, L'ARGUS DE L'ASSURANCE (Nov. 6, 2017), <http://www.argusdelassurance.com/institutions/organisations-professionnelles-et-regulateurs/terrorisme-64-m-deja-verses-aux-victimes-de-l-attentat-du-bataclan.123745>.

¹⁵³ Flore Thomasset, *À Nice, de Nouvelles demandes d'indemnisation de victims arrivent chaque jour*, LA CROIX (July 13, 2017), <https://www.la-croix.com/France/Securite/A-Nice-nouvelles-demandes-dindemnisation-victimes-arrivent-chaque-jour-2017-07-13-1200862732>.

EUR 300,000 to the victims of Nice. However, there's also anger over the slow pace of victim compensation on the part of the State.¹⁵⁴ Only 25 of the promised EUR 300 million have been paid out to 1,610 victims.¹⁵⁵ After filing an application, victims are given an advance payment of between EUR 2,500 and EUR 5,000.

E. Summary

Like most nations in the world, French society refuses to reconcile itself to the notion of fatality. Instead, the country likes to characterize itself as requiring ever-growing safety and security. This requirement generates the conviction that all risks must be covered, that the repair of all damage must be quick and complete and that society must provide, to this effect, not only compensation for the damage it has provoked, but also for both unforeseeable damage and unpreventable damage. The general tendency is therefore to extend the risks covered and to enable damage compensation at any point in time. Once the demand for reparation becomes necessary, hybrid mechanisms (mixing to various degrees insurance, liability, and solidarity) for damage compensation are used. This overall tendency can be summarized by the expression "risk socialization".¹⁵⁶ It is, however, not really the risk that is socialized, but its harmful consequences and their compensation.

It can be noted that, if insurance is already a form of solidarity – since it leans on mutualisation – risk socialization calls upon a widened solidarity beyond the circle of the co-insured, hereby including national solidarity.

This attitude of France towards compensation is also clear from the way in which the financial compensation for victims of

¹⁵⁴ Barbara Wesel, *France remembers Nice terror attack victims but questions remain*, DEUTSCHE WELLE (July 13, 2017), <http://www.dw.com/en/france-remembers-nice-terror-attack-victims-but-questions-remain/a-39682325>.

¹⁵⁵ Cécile Bouanchaud, *Un an après l'attentat, la complexe indemnisation des victimes de Nice*, LE MONDE (July 15, 2017), http://www.lemonde.fr/societe/article/2017/07/14/un-an-apres-l-attentat-la-sinueuse-indemnisation-des-victimes-de-nice_5160886_3224.html.

¹⁵⁶ The concept of "risk socialization" is highlighted in the Annual Report 2005 of the *Conseil d'État*: Conseil d'État (2005). "Rapport public 2005 – Responsabilité et Socialisation du Risque". La Documentation française, Paris: 398, available at: <http://www.conseil-etat.fr/Decisions-Avis-Publications/Etudes-Publications/Rapports-Etudes/Responsabilite-et-socialisation-du-risque-Rapport-public-2005>.

disasters is arranged in France. With its Act of 1982 which provides a comprehensive mandatory insurance for natural disasters, France is in a way even a frontrunner at international level. The mandatory insurance guarantees that all those who have housing insurance, which is more than 90% of the population, will also be automatically insured against natural disasters. The model also provides for state guaranteed reinsurance via the CCR, and is regularly applied *inter alia* at the occasion of the 2016 flooding. With respect to technological disasters France created a mandatory first party insurance in 2003 which resulted in a mandatory add-on for technological risks. With regard to nuclear damage, the compensation provided, at least via the operators' liability is, as will be shown later, low in an international comparison. For terrorism, an insurance pool jointly created by insurers, reinsurers and the CCR (GAREAT) provides cover for property damage via a multi-layered approach with even unlimited reinsurance via the CCR with a state guarantee. Personal injury will be covered through a fund. The Guarantee Fund was applied *inter alia* to cover for the November 2015 terrorist attacks.

IV. GERMANY

A. Natural Disasters

1. Ad hoc ex post Compensation

Germany's approach to financial compensation for victims of natural disasters is remarkably different than the regimes implemented in Belgium and France. The most significant difference stems from Germany's exclusion of damages related to natural disasters from the mandatory insurance scheme.¹⁵⁷ Therefore, no single instrument deals exclusively with financial compensation of victims of natural catastrophes.¹⁵⁸ As a result, potential victims of natural catastrophes in Germany must rely on private insurance. In exceptional cases, such as widespread damage resulting from a catastrophe, the German government, or specific *Länder*, will intervene with ad hoc legislation to provide financial

¹⁵⁷ Reimund Schwarze & Gert G. Wagner, *In the aftermath of Dresden: New directions in German flood insurance*, 29 GENEVA PAPERS ON RISK AND INS. [GPRI] 154, 159 (2004).

¹⁵⁸ Ulrich Magnus, *Germany, in FINANCIAL COMPENSATION FOR VICTIMS OF CATASTROPHES: A COMPARATIVE LEGAL APPROACH*, *supra* note 1, at 121.

compensation to victims of catastrophes.¹⁵⁹ The ad hoc compensation based on specific statutes in Germany is qualified as “rather insecure, often inadequate, but sometimes ‘overgenerous’”.¹⁶⁰ Because disaster insurance is not mandatory in Germany, insurance coverage is generally low.¹⁶¹

The German system of ad hoc ex post compensation was heavily criticised in various studies, mainly for creating the so-called charity hazard. Charity hazard refers to the concept that individuals reject insurance cover against natural hazards because they anticipate governmental and private aid.¹⁶² Empirical research comparing the mandatory public monopoly insurance in Switzerland with systems of risk transfer found in Austria and Germany also indicated that charity hazard in Germany caused a substantial market failure in terms of insufficient insurance demand.¹⁶³ As a result, numerous reforms to the German system were formulated, the most important one related to the introduction of mandatory comprehensive disaster insurance based on the French system.¹⁶⁴ Despite political debates in 2004, discussions regarding mandatory disaster insurance did not result in action at Germany’s legislative level. Schwarze and Wagner show that political considerations played an important role in the decision-making process.¹⁶⁵ This is related to the fact

¹⁵⁹ See Raschki, P., Schwarze, R., Schwindt, M. & Weck-Hannemann, H., Alternative financing and insurance solutions for natural hazards. A comparison of different risk transfer systems in three countries – Germany, Austria and Switzerland – Affected by the August 2005 floods, Innsbruck, KGV Prevention Foundation, 2009, 13-15; REIMUND SCHWARZE, MANIJEH SCHWINDT, GERT WAGNER & HANNELORE WECK-HANNEMANN, ÖKONOMISCHE STRATEGIEN DES NATURGEFAHRENMANAGEMENTS: KONZEPTE, ERFAHRUNGEN UND HERAUSFORDERUNGEN 25-26 (2012).

¹⁶⁰ Schwarze & Wagner, *supra* note 157, at 154.

¹⁶¹ At the occasion of the “flood of the century” (*Jahrhundert Flut*) of the Elbe in 2002, estimates were provided of available flooding insurance. The number of policies with additional (flooding) cover was estimated not to exceed 9%. See: *Id.*, at 160. Also later studies *inter alia* with respect to a flooding in 2005 showed low amounts of insurance cover. See: SCHWARZE, SCHWINDT, WAGNER & WECK-HANNEMANN, *supra* note 159, at 25-26.

¹⁶² See Paul Raschki & Hannelore Weck-Hannemann, *Charity hazard: a real hazard to natural disaster insurance?*, 7 ENVTL. HAZARDS, no. 4, 2007, at 321.

¹⁶³ See, e.g., Raschki, Schwarze, Schwindt & Weck-Hannemann, *supra* note 159, at 20.

¹⁶⁴ See, e.g., Schwarze & Wagner, *supra* note 157, at 162-63; Endres, Ohl & Rundshagen, *supra* note 23.

¹⁶⁵ “Ad hoc aid gives the decision-makers greater discretion in their response to natural disasters than regularised benefits”. See Reimund Schwarze & Gert G. Wagner, *The Political Economy of Natural Disaster*

that ad hoc responses to disasters provide large political advantages, more particularly to the politicians already in office. It is a point that has been powerfully made by Depoorter who showed that there will often be underinvestment in ex ante prevention and overinvestment in ex post recovery for the simple reason that politicians can obtain larger political rewards from ex post recovery payments than from investments in ex ante prevention, which only pay off after their term of office.¹⁶⁶ The case of the Elbe flood in 2006 illustrates that point: "Chancellor Schröder's energetic and sympathetic efforts to help Saxony during the floods led to the governing parties renewed popularity, helping the social democrats to win the 2006 election".¹⁶⁷ Another argument against the introduction of the mandatory disaster insurance was that it would lead, in a time of economic crisis, to an estimated withdrawal of EUR 2.85 billion (USD 3.24 billion) of purchasing power from the German economy, which was needed to stimulate economic growth.¹⁶⁸ The refusal to introduce mandatory disaster insurance in Germany once more underscores the difficulty of introducing mandatory insurance, given the political rewards that can be gained through (largely inefficient) ex post ad hoc compensation.

2. Example I: The 2002 Elbe Flooding

After the 2002 flood, a specific Act, *Flutopferhilfesolidaritätsgesetz*, was created to establish a Fund in order to support the victims of the catastrophe.¹⁶⁹ The purpose of the Fund was to give first and limited financial assistance on a primary level (*Soforthilfe*) and, subsequently, to finance measures for reconstruction (*Aufbauhilfe*) and the removal of damage caused by the flood.¹⁷⁰

Various studies on the Elbe flood of 2002 also provide information on the amount of losses and the financing of such losses.¹⁷¹ The official estimate in 2002 was that total losses

Insurance: Lessons from the Failure of a Proposed Compulsory Insurance Scheme in Germany, 17 EUR. ENV'T. 403, 413 (2007).

¹⁶⁶ Ben Depoorter, *Horizontal Political Externalities: The Supply and Demand of Disaster Management*, 56 DUKE L. J. 101 (2006).

¹⁶⁷ Schwarze & Wagner, *supra* note 165, at 413.

¹⁶⁸ *Id.*

¹⁶⁹ Magnus, *supra* note 158, at 121.

¹⁷⁰ *Id.* at 123.

¹⁷¹ Mechler, R. & Weichselgartner, J. (2003). Disaster Loss Financing in Germany – The Case of the Elbe River Floods 2002. IIASA Interim Report. IIASA, Laxenburg, Austria: IR-03-021, available at:

resulting from the Elbe flooding would amount to approximately EUR 9.2 billion (USD 10.4 billion). According to Magnus the 2002 Flood Fund disposed of a total amount of EUR 8.1 billion (USD 9.2 billion) that was distributed through the administration of the local communities.¹⁷²

The following amounts were compensated by the government after the Elbe flooding

Table 2: Financing Programs in the Elbe Flood

	Private Households	Residential Property	Business	Agriculture and Forestry
Emergency Relief Financing	EUR 500/person (USD 568), Max. EUR 2,000/household (USD 2,270)	EUR 5,000/building (USD 5,680)	EUR 15,000 (50% of loss) (USD 17,000) and EUR 500/employee	EUR 50,000 (USD 57,000)
	Municipal Infrastructure	Residential Property	Business	Agriculture and Forestry
Reconstruction Financing Assistance	90% of reconstruction costs	Max. 80% of reconstruction costs	35-75% of reconstruction costs	Max. 30% of crop losses, Max. EUR 1 million

Source: Mechler & Weichselgartner (2003), 31.

3. Example II: 2013 Floodings

Following heavy early summer flooding across much of Germany in 2013, federal and State leaders agreed on an EUR 8 billion package of assistance to help those hit hardest by the natural disaster. The federal government agreed to finance all the so-called “reconstruction aid” upfront. The Länder then needed to pay back EUR 3.25 billion through debt retirement and interest payments over twenty years. The Fund picked up the tab for up to 80 percent of the cost of repairing the flood damage.

<http://pure.iiasa.ac.at/id/eprint/7060/>
¹⁷² Magnus, *supra* note 158, at 133.

4. Example III: 2017 Summer Floodings

In the summer of 2017, the Elbe rose from a normal summer level of about two metres to 9.16 metres, well surpassing the 8.77 metre record of 1845. The particular storm, Paul, raged mainly in the northern half of Germany, especially in Hamburg, Berlin, Lower Saxony, and North Rhine-Westphalia. In the last two days of June 2017, Storm Rasmund's heavy rain fell on large parts of Berlin and Brandenburg. In part, over 200 liters of rain fell over a square meter within 24 hours. By comparison, Germany has an average of just under 800 liters per square meter for a whole year. The heavy rain alone caused damage of around EUR 60 million, mainly in Berlin and Brandenburg. For the heavy storm series between the end of June and the beginning of July 2017, the compensation for insured persons amounted to around EUR 600 million. About half of the compensation related to damaged houses, household effects, commercial and industrial enterprises while the other half of compensation related to fully insured cars.¹⁷³

Following the 2017 summer floodings, the German government announced hundreds of millions of euros in emergency relief to flood victims; further, the German government offered a package of tax breaks to ease the clean-up. The *Länder* also set up various compensation programs. The State of Lower Saxony, for example, put in place an aid program for private households, in order to support tenants and owners in the repair of residential buildings and the renovation of household items. If the damage surpasses EUR 500, victims can receive compensation of up to 80 percent, but victims should primarily use insurance benefits. The financial compensation is tied to the condition that those affected insure themselves against natural hazards in the future.¹⁷⁴ In June 2017, the conference of the Heads of the Federal States agreed to negotiate a piece of federal legislation that regulates pay-outs of governmental disaster relief aid.

¹⁷³ GESAMTVERBAND DER DEUTSCHEN VERSICHERUNGSWIRTSCHAFT, UNWETTER "PAUL" UND "RASMUND" VERURSACHEN SCHÄDEN VON ÜBER EINER HALBEN MILLIARDE EURO (July 12, 2017), <http://www.gdv.de/2017/07/unwetter-paul-und-rasmund-verursachen-schaeden-von-ueber-einer-halben-milliarde-euro/>.

¹⁷⁴ NIEDERSACHSEN, HILFSPROGRAMME DES LANDES NACH HOCHWASSER, https://www.niedersachsen.de/soforthilfe_-nach_hochwasser/soforthilfe-nach-hochwasser-156433.html.

B. Technological Disasters

Germany does not have specific regulations for technological disasters. There are, however, strict liabilities introduced via liability statutes for example: the Road Traffic Act, *Straßenverkehrsgesetz* (“*StVG*”); the Air Traffic Act, *Luftverkehrsgesetz* (“*LuftVG*”); the Environmental Liability Act, *Umwelthaftungsgesetz* (“*UmweltHG*”); and the Gentechnic Act, *Gentechnikgesetz* (“*GenTG*”).¹⁷⁵ Catastrophic events resulting from a dangerous activity are in principle covered by strict liability statutes. Examples such as a derailed train or a train burning in a tunnel would be subject to a strict liability of the operator or keeper.¹⁷⁶

However, literature which adopts the economic approach to law holds that strict liability statutes fail to provide satisfactory protection in the case of catastrophic damage for a variety of reasons. First, there may be catastrophic damage resulting from a technological disaster where no specific strict liability statute is applicable. For example, the storage of explosives in an inhabited flat in a densely-populated neighbourhood. Second, there is a large possibility for the operator to call on force majeure, thus excluding the liability. A third criticism relates to the fact that the special statutes introducing strict liability often contain limited amounts of compensation. As a result of such financial caps, the full damage resulting from the technological disaster may not be compensated.¹⁷⁷

C. Nuclear Accidents

Liability for nuclear installations is laid down in the Nuclear Energy Act, *Atomgesetz* (“*AtG*”),¹⁷⁸ which executes the international conventions mentioned above.¹⁷⁹ The Atomic Energy Act aims both at promoting the use of nuclear energy and preventing damages. While initially passed in 1959, the Atomic Energy Act was recast in 1985 and modified in 2002, 2011, and

¹⁷⁵ Magnus, *supra* note 158, at 124–125.

¹⁷⁶ *Id.* at 125.

¹⁷⁷ *Id.* at 127.

¹⁷⁸ Gesetz über die friedliche Verwendung der Kernenergie und den Schutz gegen ihre Gefahren [AtG] [Atomic Energy Act], July 15, 1985, BGBl. I at 1565, as amended by Gesetz zur Modernisierung der Rechts der Umweltverträglichkeit [Act on the modernization of the law of environmental compatibility], July 20, 2017, BGBl. I at 2808, paragraph 2 section 2 (Ger.).

¹⁷⁹ See *supra* Section II.C.1.

2017. In addition, Germany is a party to the Paris Convention, the Brussels Supplementary Convention, and the Joint Protocol.¹⁸⁰ According to the Atomic Energy Act, “the Paris Convention shall apply as national law in the Federal Republic of Germany, unless its provisions depend on reciprocity as effected by the entry into force of the Convention” (paragraph 25 (1) AtG). The provisions of the Paris Convention provide the basis of nuclear liability in Germany. They are complemented by Sections 25 – 40 of the Atomic Energy Act.

The Atomic Energy Act sets forth characteristics of nuclear liability in Germany.¹⁸¹ As in the international regime, liability is channelled to the operators of a nuclear power plant and the operators are strictly liable for the damage caused by a nuclear incident (paragraph 25 (1) AtG). Liability is stricter in Germany because defenses under the international regimes, such as defenses for armed conflict, hostilities, civil war, insurrection, or grave natural disasters of an exceptional character, are no longer available (paragraph 25 (3) AtG). If the damage occurs abroad, however, financial compensation is only due if that country provides reciprocal benefits (paragraph 25 (3) AtG). The territorial restrictions under Article 2 of the Paris Convention do not apply such that the operator is liable irrespective of the place of the damage (paragraph 25 (4) AtG). Germany’s system of unlimited liability constitutes a significant deviation from the international system. The liability is limited to the maximum amount of the government indemnification only if damage is caused by an armed conflict, hostilities, civil war, insurrection, or a grave natural disaster of an exceptional character (paragraph 31 (1) AtG).

To provide coverage for the potential liability, the operators are required to seek financial security (paragraph 13 (1) AtG). The administrative authority shall determine the type,

¹⁸⁰ OECD-NEA, Nuclear Legislation in OECD and NEA Countries. Regulatory and Institutional Framework for Nuclear Activities. Germany, 2011, available at: <https://www.oecd-nea.org/law/legislation/germany.pdf>. Germany signed the 2004 Protocols to Amend the Paris Convention and the Brussels Supplementary Convention and enacted relevant legislation jointly with other EU States to deposit its instruments of ratification of the Protocols. Gesetz zu den Pariser Atomhaftungs-Protokollen 2004 [Act on the 2004 Paris Nuclear Liability Protocols], August 29, 2008, BGBl. II at 902; Gesetz zur Änderung haftungsrechtlicher Vorschriften des Atomgesetzes und zur Änderung sonstiger Rechtsvorschriften [Act to amend the liability provisions of the Atomic Energy Act and other legal provisions], August 29, 2008, BGBl. I at 1793 (Ger.).

¹⁸¹ See LIU, *supra* note 92, at 226-27, for further details.

terms and amount of the financial security; however, in 2002, a limitation of EUR 2.5 billion was imposed on the amount of financial security (paragraph 13 (2) AtG).¹⁸² Since the maximum coverage amount of EUR 2.5 billion is not available at the insurance market, the operators of nuclear power plants started to find alternatives. In 2001, the four parent companies of Germany's nineteen nuclear power plants negotiated and concluded a "Solidarity Agreement" (*Solidarvereinbarung*).¹⁸³ The Agreement consists of six sections and four annexes. Under this Agreement, up to EUR 255.6 million nuclear liability is covered by third party liability insurance taken out by each operator.¹⁸⁴ Between this amount and EUR 2.5 billion, coverage is provided under the framework of a contract to which all nuclear power plant operators and their respective parent companies are jointly subscribed. Each party has an obligation to contribute a percentage of the total amount in case a damage is attributed to one of the parties. The percentage for each nuclear power station is calculated according to the square root of the thermal reactor output. The percentage of power plants is then attributed to the parent companies on the basis of their participation (Clause 1 (3) Solidarity Agreement).

• This allocation of liability is different from that in the US, where each operator bears the same quota. In Germany, the allocation of contribution is based on the generating capacity. As in the US, the obligation to make the contribution only comes due after a damage in excess of the insurance capacity happens.

¹⁸² In the beginning of the 1970s, a pooling system in Germany emerged. At that time, an increase of the financial security up to 1 billion DEM (\approx EUR 500 million) was on the legislative agenda. The first DEM 500 million should be covered by private means while the government should indemnify the remaining half. The insurers and nuclear operators negotiated to cover liability up to DEM 500 million fully by insurance. The first DEM 200 million was covered by insurers while for the remaining DEM 300 million, the insurer only fronted contract. The remaining DEM 300 million was reinsured by the operators of nuclear power plants as a whole. This arrangement remained valid until 2002. In 2002, the amendment to the Atomic Energy Act increased the amount of financial security up to EUR 2.5 billion and allowed financial security in other forms rather than through liability insurance. See Norbert Pelzer, *International Pooling of Operators' Funds: An Option to Increase the Amount of Financial Security to Cover Nuclear Liabilities*, 79 NUCLEAR L. BULL. 37, 43 (2007); Simon Carrol, *Perspective on the Pros and Cons of a Pooling-type Approach to Nuclear Third Party Liability*, 81 NUCLEAR L. BULL. 75, 91 (2008).

¹⁸³ Pelzer, *supra* note 182, at 44 n. 24.

¹⁸⁴ Insurers argued they could only provide full coverage up to EUR 256 million. See Carrol, *supra* note 182, at 91.

However, the risk that the operators have to contribute is even smaller in Germany where the partners only have to pay if neither the operator nor the parent company are in a position to pay up to EUR 2.5 billion (Clause 1 (5) Solidarity Agreement). The Solidarity Agreement is hence only a guarantee for the payment by the liable parties.

If the liability is not covered by or cannot be satisfied by financial security, the German State shall indemnify the operator (paragraph 34 (1) AtG). The maximum amount of indemnification – to the extent that the damages are not covered by private financial security or that claims cannot be paid out of such security – is set at EUR 2.5 billion. The obligation of payment is the maximum amount minus the amount that is covered by financial security. Such indemnification is borne for up to the amount of EUR 500 million, 75% by the federal authorities and 25% by the region (in German referred to as Land) where the installation is situated. The federal State covers the amount between EUR 500 million and 2.5 billion alone. After the payment of the indemnification, recourse is possible if the operator disobeys specific obligations, or the operator caused the damage wilfully or by gross negligence, or if the operator did not seek financial security to the required extent (paragraph 37 AtG). But the liability for third parties prevails over the claims for recourse (Clause 1(8) Solidarity Agreement). In addition to mutually guaranteeing the coverage of liability, the partners must also provide help in handling claims; for example, they may provide legal and commercial staff capacity and infrastructure. For this kind of support, the partners cannot ask for repayment. The partners also provide help for the use of independent contractors, up to the amount of EUR 122,218 million (Clause 2 Solidarity Agreement). To ensure the availability of assets in case of damage, the partners must submit an auditor's certification each year (Clause 3 Solidarity Agreement).

German law therefore differs importantly from the international Conventions by providing a much higher amount of compensation via a retrospective pooling scheme. The amount of financial security to be provided through the pool moreover does not eliminate the principal liability of the operator. In other words, under the German approach nuclear operators are still liable if the capacity of the pool is depleted.

D. Terrorism

1. Material Damage

In response to 9/11, the German reinsurance market made the decision to exclude losses due to an act of terrorism. The primary market followed suit in view of the missing reinsurance capacity. This led to the creation of a so-called terrorism pool – as was the case in many countries. Extremus Versicherungs-AG (“Extremus”), a pool consisting of seventeen insurers and reinsurers, was created and approved by the German State authority in September 2002.¹⁸⁵ Extremus acts as primary insurer, issuing the policies on its own paper. The company buys reinsurance from its shareholders, from other companies active in the German market and from international reinsurers. The scheme is not mandatory, nor is it mandatory for insurers to offer terrorism coverage for larger risks. Primary insurers might recommend their clients to Extremus if the clients wish to purchase terrorism insurance.¹⁸⁶

Extremus intervenes to cover damage to property and losses due to the interruption of business operations. Nuclear, biological, or chemical (“NBC”) contamination is excluded, as well as cyber terrorism. The scheme also does not include aviation, marine, life or personal accidents. Financial compensation for victims of terrorist attacks is thus not covered by Extremus. All property has to be located within Germany and losses have to occur in German territory.

Due to the scope of risk for which Extremus is eligible, the primary market is able to provide coverage for smaller risks that result as a consequence of a terrorist attack. Extremus covers losses higher than EUR 25 million, but coverage is subject to an overall limitation of EUR 2.5 billion.¹⁸⁷ All policies provide for a standard deductible of EUR 50,000. The maximum damage which a policyholder can insure with Extremus for a single year is limited to EUR 1.5 billion.¹⁸⁸ Above the limit of EUR 2.5 billion (in the annual aggregate co-insured by members of the pool), the German State provides additional coverage up to an amount of EUR 10 billion for excess losses.¹⁸⁹ For its guarantee, the State receives a payment of 12.5% of the premiums collected

¹⁸⁵ Magnus, *supra* note 158, at 130.

¹⁸⁶ INT’L FORUM FOR TERRORISM RISK (RE)INS. POOLS, *supra* note 148.

¹⁸⁷ Magnus, *supra* note 158, at 130.

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*; Schwarze & Wagner, *supra* note 157, at 163.

by Extremus. Extremus is in other words a multi-layered insurance pool consisting of insurers and reinsurers providing a total capacity of EUR 10 billion. Thus far, no indemnifications have been paid out by Extremus. The severe terrorism attack on 19 December 2016 in Berlin affected one insured (the other victims having sustained only physical injuries), but the loss remained within the deductible.¹⁹⁰

Since 1 January 2017, Extremus has been offering so-called “threat insurance”, which covers certain incidental costs if, for example, a shopping center is closed by authorities because it is presumed to be the scene of a terrorist attack.

2. Personal Injury

Victims of violent crime in Germany have a right to ask financial compensation under the Victims Compensation Law.¹⁹¹ The Law is based on the concept that victims of a violent attack have a claim for compensation against the State which has been unable to protect them in spite of all its efforts. Physical or mental harm as a result of a violent attack is a prerequisite for a claim for compensation. Victims of crimes of violence receive all health treatment measures necessary to restore or improve their health; this includes, for example, health or occupational rehabilitation measures, care services, psychotherapeutic treatment, etc. This Act also provides payments to cover living expenses and long-term pension payments to compensate for the physical injuries and economic losses. The level of the graduated pension payments is governed by the extent of the respective injury to health and the losses of income caused by the injury. At the lowest level, the current monthly payment is EUR 118. The only payments that will be deducted are those which the victim actually receives in respect of the same injury and which are also intended for the same purpose.

Compensation can be claimed by German nationals and by foreigners who are lawful residents in Germany.

¹⁹⁰ Charlie Thomas, *Extremus Considering First Claim Following Berlin Attack*, THE INSURANCE INSIDER (Jan. 18, 2017), <http://www.insuranceinsider.com/extremus-considering-first-claim-following-berlin-attack>.

¹⁹¹ Gesetz über die Entschädigung für Opfer von Gewalttaten [OEG] [Victims Compensation Law], May 11, 1976, BGBl. I at 1181 (Ger.).

3. Example: The 2016 Berlin Terrorist Attack

On 19 December 2016, a truck was deliberately driven into the Christmas market next to the Kaiser Wilhelm Memorial Church at Breitscheidplatz in Berlin, leaving twelve people dead and 56 others injured.

There was some initial confusion over the financial compensation for the victims' families. Since the attacker used a truck, it was initially classified as a road incident rather than a terrorist attack. Therefore, the victims had to apply to the *Verkehrsofferhilfe*, an assistance Fund set up to aid victims of road accidents. As a result, the victims of the Berlin attack have been compensated partly from a Fund primarily set up to deal with motor vehicle accidents and not under the aegis of the Victims Compensation Law. The German Justice Minister said that the government would rewrite German law to rule out such absurdities in future. By December 2017, Germany paid out EUR 2.3 million in compensation and support. The government's hardship rules set individual sums of EUR 10,000 for immediate family members and EUR 5,000 for siblings.¹⁹² Those left wounded have received sums based on the severity of their injuries.

The initial response to the tragic events in Berlin has been broadly criticized, and the poor handling of Germany's response has been widely admitted, so much so that a final report on the underlying problems has been presented by the German Justice Minister in December 2017.¹⁹³ In particular, victims and relatives complained about the lack of state recognition, the lack of timely information, and the inadequate government financial support. The report proposes the establishment of information centers for victims and relatives at the site of terrorist attacks, as well as a point of contact in the government. It also wants to streamline procedures for notifying family members of people who have been seriously injured or killed. Further, the government should take the lead in advising victims and relatives on how to get support and compensation payments. Interestingly, the

¹⁹² Jefferson Chase, *German Government Criticized Over Terror Victims Compensation*, DEUTSCHE WELLE (Dec. 12, 2017), <http://www.dw.com/en/german-government-criticized-over-terror-victims-compensation/a-41778143>.

¹⁹³ BUNDESMINISTERIUM DER JUSTIZ UND FÜR VERBRAUCHERSCHUTZ, *OPFERBEAUFTRAGTER LEGT ABSCHLUSSBERICHT VOR* (Dec. 13, 2017), <https://www.bundesregierung.de/Content/DE/Meldungen/2017/12/2017-12-13-bericht-opferbeauftragter-beck.html>.

recommendations in the report have been based on general practice in Israel, a country with an extensive history of dealing with terrorist attacks.

E. Summary

Germany regards the prevention of catastrophic damage as a matter of great importance.¹⁹⁴ Prevention as far as possible is the overriding aim of any protection against catastrophes. This is particularly affected by requiring extended preventive measures and precautions as far as private or public operators of publically accessible places or events (installations, plants, trains, planes, sporting events, etc.) are concerned. These operators are required to provide reasonable preventive safety measures even against natural disasters. Moreover, the German Federation and the *Länder* have established specific institutes, agencies and measures with the goal of protecting the population against catastrophic risks.

However, as far as ex post financial compensation for victims is concerned, Germany lacks a structural solution similar to the mandatory comprehensive first party insurance systems implemented in Belgium and France. Attempts to introduce such a model failed. As a result, victims of natural disasters in Germany have to rely on ad hoc ex post compensation. The flooding that occurred in 2013 and 2017 showed that the German government (often the federal level, but often equally in combination with the *Länder*) generously intervenes.

Germany especially has a strikingly interesting model for the compensation of damage caused by nuclear accidents. The total amount of indemnification is high, also in international comparison (EUR 2.5 billion), but it is especially striking that the largest part of this compensation is paid via a risk-sharing agreement between the nuclear power plant operators. Germany has, like the Netherlands and Belgium, also created a special insurance pool to deal with terrorism-related property damage (*Extremus*). Personal injury is compensated on the basis of a special act dealing with financial compensation for specific victims. Notwithstanding particular problems, the German government paid out EUR 2.3 million in compensating the victims of the 2016 Berlin terrorist attack.

¹⁹⁴ Magnus, *supra* note 158, at 120.

V. THE NETHERLANDS

A. Natural Disasters

1. Introduction

The Netherlands has suffered various types of natural catastrophes, including an earthquake in Southern-Limburg (1992), severe storms (1997, 2002, 2007 and 2013), and heavy rain and flooding in the South-East (1993-1995). With respect to each natural catastrophe, the legal instruments available to provide financial compensation came into question. Victims frequently approached the government for compensation and, as a result, the government of the Netherlands intervened on various occasions by using the public budget to provide ad hoc compensation to the victims. As is shown below, a specific Act – *Wet Tegemoetkoming Schade bij Rampen en Zware Ongevallen* (“WTS”) – was created in 1998 with the aim of providing financial compensation to the victims of catastrophes and severe accidents. In practice, however, it appears that WTS often has not been applied to cases where many people suffered harm as a result of a disaster. Therefore, in addition to the statutory arrangement in the WTS, the government of the Netherlands along with other organisations created ad hoc solutions for specific victims. The main problems with respect to the insurability of disasters and the solutions via these collective arrangements are addressed below.

2. Evolution of Insurance Coverage

In the 1950s Dutch insurers issued so-called binding decisions, applying to all their members, prohibiting them from insuring flood and earthquake risks; the latter being relatively small in the Netherlands with the exception of the area around southern Limburg.¹⁹⁵ The argument of the insurers was that these risks were technically not insurable and that therefore all of their members should refrain from covering them.¹⁹⁶ The insurers feared adverse selection because of concerns regarding the occurrence of a natural disaster that resulted in billions of euros

¹⁹⁵ Ton Hartlief, *Vergoeding van watersnoodschade*, in RECHT IN HET WATER: DE JURIDISCHE ASPECTEN VAN WATERSNOOD 131, 142-143 (Michael G. Faure & Frits Stroink eds., 1995).

¹⁹⁶ MICHAEL G. FAURE & TON HARTLIEF, INSURANCE AND EXPANDING SYSTEMIC RISKS, 223-25 (2003).

worth of damage and an insufficient amount of statistical material for the calculation of premiums. It was argued that only those who would be largely exposed to the risk would have a demand for insurance; others would have no need for coverage, leading to a situation of adverse selection. Consequently, those who faced the risk of being affected by a natural disaster could not receive coverage simply because insurers had agreed not to cover those risks.

As a result of an earthquake close to Roermond in 1992 and the flooding of the River Meuse in 1993, the binding decision concerning earthquakes was quickly withdrawn, and insurers came under increased pressure to abrogate the binding decision on flooding. In part, this was the result of political pressure on insurers, as can be seen, for instance, by the questions that were put to the government during the parliamentary proceedings.¹⁹⁷ But it was due also to the concerns of the European competition authorities since the binding decision clearly violated the conditions of Regulation 3932/92 of 21 December 1992 on the application of Article 85(3) of the "Treaty to certain categories of agreements, decisions and concerted practices in the insurance sector".¹⁹⁸ Levie and Cousy (1994) have commented on this exemption regulation, which states that standard policy conditions in particular may not contain any systematic exclusion of specific types of risk without providing for the express possibility of including that cover by agreement (see Consideration 8 preceding the exemption of the Regulation, as well as Article 7(1)(a) of the exemption, reflecting that non-competitive practices are apparently not an exception in Dutch insurance practice). The binding decision was subsequently withdrawn in 1998.¹⁹⁹

Negotiations took place between the government and the insurers on a new system of coverage for natural disasters, with the French model being used as an important example. These debates finally led to the introduction of the WTS 1998,

¹⁹⁷ Overstromingen in Nederland, December 1993, Documents of the Second Chamber of Representatives 1993-1994, 23 564, no. 3.

¹⁹⁸ Commission Regulation 3932/92, 1992 O.J. (L 398) 7. Note that this group exemption for the insurance sector has meanwhile been abrogated.

¹⁹⁹ Report to the European Parliament concerning the operation of the exemption Regulation 3932/92 COM (1999) 92 final (May 12, 1999). Where the European Commission explicitly discussed these binding decisions, stating that, as a result of the questions asked by the Commission, the Dutch Association of Insurers had decided to bring its binding decisions into line with the regulation by simply converting the binding decision into a non-binding recommendation, leaving each insurer free to extend cover to flood risks.

providing for public compensation in the event that the damage is uninsurable. In addition, by the end of the 1990s, Dutch insurers acquiesced to political pressure and announced that they were prepared to cover damage caused by heavy rain, as can be seen in a letter of the Secretary of State of Internal Affairs Gijs de Vries.²⁰⁰ The fact that the public funding mechanism offered under the WTS 1998 was not applicable to cases where risks in principle would be insurable played an important role in this respect. As a result, damage due to heavy rainfall became insurable.

In 1999, the Dutch Association of Insurers advised that insurance against heavy rainfall would be included in the existing building, fire and theft, and contents covers.²⁰¹ Damage due to rainfall, including the overflow risk of dikes and quays, should be covered for both private individuals and companies. Damage resulting from the flooding of rivers not originating in the Netherlands and saltwater flooding remains uninsurable. That shows that the scope of insurance cover for flooding in the Netherlands remains extremely limited. The WTS 1998 gives citizens and companies the right of financial compensation when insurance possibilities are exhausted.

As a side note, it is of interest to mention that the Dutch Association of Insurers agreed in 2002 to offer agricultural water damage insurance through a pool, covering damage up to an amount of EUR 50 million, backed by a guarantee of the central government for an amount between EUR 50 and 100 million with a deductible of 25% if the damage is higher.²⁰² This example makes clear that the Netherlands has been moving forward with regard to the insurability of water damage. The insurance is meant to cover, in particular, crop damage due to heavy rain. The agricultural sector also agreed that, in such a case, it would not call for financial compensation from the government on an ad

²⁰⁰ Wateroverlast in Nederland; Brief staatssecretaris inzake mogelijke uitbreiding verzekeringsconstructies voor schade als gevolg van extreme regenval, 28-01-2000 | Kamerstuk 24071 nr. 55 | Tweede Kamer [Documents of the Second Chamber of Representatives 1999-2000, 24 071, no. 55 et seq.] in Dutch.

²⁰¹ Matthijs Kok, Hessel F. Dooper & Ingrid B.M. Lammers, *Verzekeren van regenschade*, 2000 HET WATERSCHAP 803. AVAILABLE AT: [HTTP://EDEPOT.WUR.NL/80338](http://EDEPOT.WUR.NL/80338).

²⁰² Wateroverlast in Nederland; Brief minister en staatssecretaris over het principe-akkoord tussen LTO Nederland en het Rijk over de oogstschadeverzekering voor extreme neerslag, 30-12-2002 | Kamerstuk 24071 nr. 59 | Tweede Kamer [Documents of the Second Chamber of Representatives 2002-2003, 24 071, no. 59], I in Dutch.

hoc basis. However, the WTS 1998 would still remain applicable, for instance in the event of damage caused by flooding. Yet, since the guarantee of the central government principally constitutes state aid, the European State Aid procedure had to be followed, as reflected by the letter of the Minister of Agriculture, Cornelis Pieter Veerman of 11 April 2003.²⁰³ On 15 October 2003, the European Commission approved the subsidy provided by the central government in the form of a guarantee.²⁰⁴ Thereon, it became possible for the market to start developing these crop damage insurances. Two pools, Agriver and OWM AquaPol²⁰⁵ (formerly LTO AquaPol), were instituted. Both apply for the subsidy in the form of a guarantee by the central government. Since 19 March 2004, Agriver has offered insurance for crop damage against the consequences of heavy rain, subsidized by a guarantee of the central government.²⁰⁶ In 2007, crop insurance was expanded to include compensation of damage to crops in the fruit-farming sector caused by frost. The European Commission approved the extension of such regulation on 19 June 2007.²⁰⁷ The Dutch State hereby provides a subsidy in the form of a guarantee as a stimulus for insurance companies, ranging from EUR 6,677,400 (USD 7,586,962) to a maximum of EUR 20,927,400 (USD 23,778,025) per year for frost damage, with a total insured value of EUR 762.6 million (USD 866.5 million). Furthermore, the decision of the European Commission altered the state aid rules regarding the first branch of crop insurance. In both cases, a deductible of 25% per crop applies. It is noteworthy that governmental intervention thereby facilitated the insurability of the risk caused by a catastrophe, especially crop damage caused

²⁰³ Wateroverlast in Nederland; Brief minister over het principeakkoord over de oogtschadeverzekering voor extreme neerslag door regen, 16-04-2003 | Kamerstuk 24071 nr. 60 | Tweede Kamer [Documents of the Second Chamber of Representatives 2002-2003, 24 071, no. 60] in Dutch.

²⁰⁴ Wateroverlast in Nederland; Brief minister over Subsidieregeling nieuwe agrarische schadeverzekeringen 2003, 21-10-2003 | Kamerstuk 24071 nr. 63 | Tweede Kamer [Documents of the Second Chamber of Representatives 2003-2004, 24 071, no. 63]; Commission Decision of 15 October 2003 concerning a subsidy for new agricultural assurances, C (2003) 3551 fin, in Dutch.

²⁰⁵ OWM AquaPol decided to cease its insurance activities from 2009, due to the limited number of insured parties.

²⁰⁶ Wateroverlast in Nederland; Lijst van vragen en antwoorden over de problemen voor de agrarische sector door hevige regenval, 29-09-2004 | Kamerstuk 24071 nr. 65 | Tweede Kamer [Documents of the Second Chamber of Representatives 2004-2005, 24 171, no. 65] in Dutch.

²⁰⁷ See Documents of the Second Chamber of Representatives (2007) 3096, in Dutch.

by heavy rainfall and extreme frost.

This course of events makes clear that although there are undoubtedly great benefits to cooperation between insurers, the case of the Dutch binding decisions indicates that this cooperation may effectively also limit or even exclude coverage. Even when the binding decisions were abrogated, the negotiations between the government of the Netherlands and the Dutch Association of Insurers determined the conditions for covering damage caused by natural disasters. According to legal doctrine, this shows that an effective competition policy is in great need in order to generate a wide and differentiated supply of insurance policies.²⁰⁸

3. WTS 1998

In the 1990s the debate on financial compensation for victims of catastrophes, more particularly of flooding, continued. The government of the Netherlands originally argued against the French solution due to fears that free consumer choice would be limited, and that a compulsory system would increase costs for citizens.²⁰⁹ Ultimately, the government chose to introduce a draft of legislation similar to the French framework. The draft installed a Fund which would be financed through a tax on housing insurance. All those insured (bad or good risks) would have to pay the tax. However, the Dutch Council of State criticized this draft because they claimed that the preferable course of action would be letting the government finance this risk and that insuring the flooding risk was possible.²¹⁰ Hence, the government decided to withdraw the draft.

Following the withdrawal of a draft similar to the French framework, the government of the Netherlands used the Belgian Disaster Fund of 1976 as a model for the WTS, an Act on compensation of damage in the event of catastrophes and large accidents.²¹¹ The WTS sought to provide a structural solution for

²⁰⁸ Michael G. Faure & Roger Van den Bergh, *Competition on the European Market for Liability Insurance and Efficient Accident Law*, 9 MAASTRICHT J. EUR. & COMP. L., no. 3, 2002, at 279.

²⁰⁹ Vaststelling van de begroting van de uitgaven en de ontvangsten van hoofdstuk VII (Ministerie van Binnenlandse Zaken) voor het jaar 1994, 11-04-1994, Tweede Kamer, 23 400 VII ondernummer 34 [Documents of the Second Chamber of Representatives 1993-1994, 23 400 VII, no. 34, 2] in Dutch.

²¹⁰ Documents of the Second Chamber of Representatives 1995-1996, 26 640, no. 1, 2-3, in Dutch.

²¹¹ Wet van 25 mei 1998, houdende regels over tegemoetkoming in de schade en de kosten in geval van overstromingen door zoet water,

financial compensation of victims of catastrophes rather than impose a system of ad hoc responses.²¹² De Vries (1998),²¹³ de Groot (2004),²¹⁴ and Bruggeman (2010)²¹⁵ completed separate analyzes to determine the situations under which the WTS would provide a right to financial compensation for damage. The result of such analyzes indicates that compensation is applicable in the case of events classified as a catastrophe, such as fresh water flooding or earthquakes, or large accidents of at least an equal amount of damage. Large accidents only fall within the WTS's scope of application if such accident was declared to constitute a large accident by a Royal Decree (Art. 3). To qualify as a large accident, parliamentary proceedings indicate that governmental organizations and services of various disciplines must have intervened in a coordinated response effort. Further, the accident must have endangered the health of many individuals and caused substantial damage.²¹⁶

The WTS clearly has a subsidiary character, as is made clear in the Act itself. Article 4, for instance, provides that victims will receive financial compensation for particular types of damage, including damage to a dwelling, commercial loss and property damage.²¹⁷ Article 4(3) of the WTS stipulates that victims are not entitled to financial compensation when the

aardbevingen of andere rampen en zware ongevallen [Wet tegemoetkoming schade bij rampen en zware ongevallen] [Act on compensation for damages in case of disasters and major accidents], Stb. 1998, 325 (Neth.).

²¹² The WTS foresees, according to its explanatory memorandum, in a "structural arrangement on the basis of which the State gives compensation to those who made costs in preventing or limiting damage and to those who suffered damage which is the immediate and directive consequence of a freshwater flood, an earthquake or another catastrophe of at least equal order".

²¹³ de Vries, F.J., 'Vergoeding van rampschade', *Nederlands Juristenblad* [NJB], 1998, 1908-13.

²¹⁴ de Groot, J.F., 'Na de ramp. Een beschouwing over de toepassing van de WTS', *Overheid en Aansprakelijkheid*, 2004, 141-52.

²¹⁵ BRUGGEMAN, V., *COMPENSATING CATASTROPHE VICTIMS. A COMPARATIVE LAW AND ECONOMICS APPROACH*, Alphen aan den Rijn, Kluwer Law International, 2010.

²¹⁶ Wet tegemoetkoming schade bij rampen en zware ongevallen; *Memorie van Toelichting*, 12-12-1996, Kamerstuk 25 159, nr. 3 [Documents of the Second Chamber of Representatives 1996-1997, 25 159, no. 3], 4-5, in Dutch.

²¹⁷ Other forms of damage also can be declared to fall under the scope of the WTS, but pure economic loss will not be compensated since this is considered a normal business risk. *Wet tegemoetkoming schade bij rampen en zware ongevallen*; *Nota n.a.v. het verslag*, 25-08-1997, Kamerstuk 25 159, nr. 5 [Documents of the Second Chamber of Representatives 1996-1997, 25 159, no. 5], 25-26, in Dutch.

damage was reasonably insurable or when the victim was able to obtain compensation from another source. The parliamentary proceedings made clear that damage is considered as reasonably insurable when it is not generally excluded from coverage and when it is generally insurable without limiting conditions or excessively high costs, which calls into question whether damage resulting from natural disasters can be considered insurable. In response, the WTS explicitly notes that certain types of damage, such as damage to motor vehicles, will not be compensated under the Act because the type of damage is insurable and covered under commercial insurance.²¹⁸ If, however, insurance were theoretically possible, but victims did not take up the possibility because the premium charged would not be proportional to the coverage provided, the WTS may be applicable again.²¹⁹

The WTS works with a layered system of compensation. The general basis for compensation is set forth in Article 6 of the Act, but the Implementing Regulation WTS²²⁰ contains more specific rules regarding the calculation of the magnitude of certain heads of damage and costs. In case the WTS is directly applicable, or declared applicable to a specific disaster by Royal Decree, a Ministerial Regulation will have to be elaborated. This Ministerial Regulation then sets forth more detailed rules regarding the compensatory amount and the calculation methods. Since the general basis for compensation cannot remain uncapped, the victim will only receive a contribution in the total amount of his or her damage and costs, and thus not full financial compensation. In practice, the available amount per disaster or large accident is limited to EUR 500 million.²²¹

The WTS mainly applies to damage caused by heavy rain.²²² De Groot (2004, 152) claims that the WTS has been

²¹⁸ Documents of the Second Chamber of Representatives 1996-1997, 25 159, no. 3, 15, in Dutch.

²¹⁹ Documents of the Second Chamber of Representatives 1996-1997, 25 159, no. 5, 7, in Dutch.

²²⁰ Besluit van 10 november 1998, houdende regels ter uitvoering van de Wet tegemoetkoming schade bij rampen en zware ongevallen [Besluit tegemoetkoming schade bij rampen en zware ongevallen] [Implementing Regulation on compensation for damages in case of disasters and major accidents], Stb. 1998, 648 (Neth.).

²²¹ See Regeling tegemoetkoming schade bij dijkdoorbraak te Wilnis 2003 [Regulation on compensation for damages in case of dike breaches in Wilnis], Stcrt. 2003, 202; and Regeling tegemoetkoming schade bij overstrooming van de Maas [Regulation on compensation in the event of flooding of the Maas] 2003, Stcrt. 2003, 9.

²²² Enno Van der Schans, *Regen als ramp: Wateroverlast en de WTS*,

applied only four times.²²³ The first and second applications of the WTS stemmed from cases of heavy rain. In both instances, the WTS needed to be declared applicable by Royal Decree because the heavy rain did not pertain to a formal flood in the sense of Article 1 of the WTS. It is remarkable that this statutory arrangement, which was specifically created by the legislator to compensate victims of catastrophes, has been applied merely in the case of damage due to heavy rainfall (which is in principle insurable). The legislator has not succeeded in its (at least implicit) attempt to create with the WTS an exclusive arrangement for government contributions in the event of both natural catastrophes. Hence, it is not surprising that the WTS has been the subject of criticism in various literature.

4. Recent Evolutions

The absence of an adequate flooding insurance in the Netherlands was criticized by the Netherlands Scientific Council for Government Policy (WRR),²²⁴ which resulted in Dutch insurers developing a proposal for flooding insurance based on the French model. This time, however, they encountered difficulties with the Netherlands Competition Authority, *Autoriteit Consument en Markt*, ("ACM"). The ACM criticized the fact that consumers would no longer have a choice and doubted whether there was a societal need for disaster insurance.²²⁵ The ACM argues, *inter alia*, that consumer interest groups would not support flooding insurance.²²⁶ As a result, the insurers withdrew their initiative in 2013 and determined that a political solution was required. The insurers stated in their press memo:

As a result of the position of the ACM, the Netherlands will still be without an affordable flooding insurance with an adequate cover. At the occasion of a next flooding (which will inevitably take place), victims will

2000 TIJDSCHRIFT VOOR MILIEUAANSPRAKELIJKHEID 13.

²²³ The amount of times the WTS has been applied is the same thirteen years after the enactment of the Act as it was in 2004 when De Groot made this claim.

²²⁴ See Saskia C. van Dijke, *De overstromingsverzekering in Nederland*, in *POLITIEK PRIVAATRECHT* 247, 262 (Willem H. van Boom & Siewert D. Lindenberg eds., 2013).

²²⁵ ACM, Informele zienswijze in zaak nr. 7571, 6 June 2013.

²²⁶ ACM, Informele zienswijze, verplichte private verzekeringsconstructie voor overstromingsdekkingen, 2013, 10-11.

again be uncompensated. They will then have to await whether they can still call on the WTS. And they will rightly ask why no arrangements have been made.²²⁷

It is striking that despite long negotiations and attempts to implement flooding insurance, flooding insurance remains unavailable in the Netherlands.²²⁸ The reluctance to seek insurance solutions was also apparent in the reaction of the Netherlands to the Green Paper on the insurance of natural and man-made disasters.²²⁹ In the Dutch reaction, the government claims to be against European regulations that increase the insurability of natural disasters. The government resists a larger involvement of the government (arguing that that would lead to moral hazard), mandatory disaster insurance (as it would lead to negative redistribution), and the French model of a mandatory add-on in addition to voluntarily purchased insurances.²³⁰

This overview of the development of disaster insurance in the Netherlands reveals that efforts to develop flooding insurance have failed despite numerous attempts.²³¹ Although the binding decisions from the 1950s have formally been abrogated, the failed efforts to develop flooding insurance indicate that the spirit of those binding decisions has not left the Netherlands.²³² For victims of natural disasters this effectively means that they are

²²⁷ In Dutch: “Door de ACM-zienswijze blijft Nederland voorlopig verstoken van een betaalbare overstromingsverzekering met een goede dekking. Bij een volgende overstroming – die vroeg of laat komt – staan gedupeerden opnieuw in de kou. Zij moeten dan maar afwachten of ze dan nog een beroep kunnen doen op de WTS. En vragen zich dan terecht af waarom er niets is geregeld”. See Buis (2013), Verbond: betaalbare overstromingsverzekering biedt burgers zekerheid, available at: <https://samenwerken.verzekeraars.nl/-actueel/nieuwsberichten/Paginas/Verbond-betalbare-overstromingsverzekering-biedt-burgers-zekerheid.aspx>.

²²⁸ See Michael G. Faure, *Is Nederland aangepast aan klimaatverandering?*, 2010 AANSPRAKELIJKHEID, VERZEKERING & SCHADE [AV&S], 1; and Véronique Bruggeman, *De schadeloosstelling van slachtoffers van natuurrampen: Kan de Nederlandse oplossing worden aanbevolen?*, 2012 OVERHEID & AANSPRAKELIJKHEID [OA] 56, for critical perspectives.

²²⁹ Green Paper on the insurance of natural and man-made disasters, COM (2013) 213 final (Apr. 16, 2013).

²³⁰ See the reaction of the Netherlands on the Green Paper on the Insurance of Natural and Man-made Disasters, *Brief van de Minister van Economische Zaken dd 17 juni 2013*, Kamerstukken II 2012-2013, 27-06-2013, 22112, no. 1634 = <https://zoek.officielebekendmakingen.nl/kst-22112-1634.html>.

²³¹ See also Van Dijke, *supra* note 224, at 263.

²³² Hartlief & Faure, *supra* note 6, at 1036.

subjected to a declaration of applicability of the WTS. Alternatively, victims of natural disasters need to await ad hoc government compensation. Notwithstanding the many reports and recommendations, including from the WRR,²³³ 60 years after the dramatic flooding that took place in the province of Zeeland in 1953, flooding insurance in the Netherlands is still not available.²³⁴

B. Technological Disasters

1. Introduction

In addition to the negligence rule set forth in Article 6:162 BW, the Netherlands Civil Code²³⁵ includes a large amount of strict liabilities. For example, Article 6:175 BW includes strict liabilities for damage caused as a result of dangerous substances and waste sites. Those strict liabilities are not linked to any compulsory liability insurance, but, if the liable injurer would have purchased liability insurance, the victim has a direct right of action against this liability insurer.²³⁶

The liabilities incorporated in Section 6:3 BW can in theory be applied in case of a technological disaster. However, in practice, the question of whether the injurer can effectively provide compensation arises more frequently than the issue of satisfying the legal conditions for liability. Insured amounts are often insufficient to compensate victims of technological disaster.²³⁷

2. Solvency Guarantees

Dutch legislation does not provide a large amount of mandatory solvency guarantees. The Belgian example of compulsory insurance in combination with strict liability for explosions and fires in public buildings has also been discussed in the Netherlands.²³⁸ A Belgian scholar, Van Schoubroeck, even theorized that if a disaster like Volendam would have taken place

²³³ The critical report of the WRR of 2012 will be discussed in the next section related to technological disasters.

²³⁴ Hartlief & Faure, *supra* note 6, at 1036.

²³⁵ Burgerlijk Wetboek [BW] [Civil Code] (Neth.).

²³⁶ Art. 7:954 Burgerlijk Wetboek [BW] [Civil Code] (Neth.).

²³⁷ Hartlief & Faure, *supra* note 6, at 1014.

²³⁸ See, e.g., Dineke Postma & Tom Bertens, *Crisis, rampen en recht: Verslag Jaarvergadering NJV 2014*, 2015 NEDERLANDS JURISTENBLAD [NJB] 18.

in Belgium, the damage would have been largely covered under the mandatory insurance cover.²³⁹

3. WTS

When drafting the WTS, legislators in the Netherlands sought to create an arrangement that would provide exclusive compensation in the case of large disasters, i.e. both natural and man-made catastrophes. For man-made catastrophes, the WTS must be declared applicable by Royal Decree.

However, Article 4(3) of the WTS imposes a condition that compensation for damages must not be recoverable from another source. The historical application of the WTS has shown that, as a result, the WTS may not be applicable in cases of man-made disasters where damage can be claimed from a liable injurer. Thus, the subsidiarity of the WTS manifests itself in one of two circumstances. First, the WTS is applicable, but if certain types of damage are recoverable from another source they are not covered under the WTS. Second, the WTS is not applicable at all, given the claim possibilities in tort law.

In order to provide a good picture of the problems with which victims of technological disasters are confronted, two major technological catastrophes that occurred at the beginning of this century will be described. They are a good illustration for the problems of providing financial compensation to victims of technological disasters in the Netherlands. Precisely in cases of serious man-made disasters with large personal injury, like in the cases of Volendam and Enschede, the WTS was not applied. The formal reason provided was that the damage in both cases concerned “insurable damage” such that the WTS was inapplicable.²⁴⁰

4. “Enschede”

The first example is the explosion of a fireworks factory in Enschede on 13 May 2000.²⁴¹ The fire in the fireworks factory

²³⁹ Caroline Van Schoubroeck, *Objectieve aansprakelijkheid en verzekeringsplicht bij schade door rampen: Een Belgische case-studie*, in AANSPRAKELIJKHEID EN SCHADEVERHAAL BIJ RAMPEN, 145 (Arno J. Akkermans & Edward Brans eds., 2002); Herman Cousy, *Rampenschade in België: nieuwe ontwikkelingen*, in KRING VAN AANSPRAKELIJKEN BIJ MASSASCHADE 105, 116 (VERMANDE ED. 2002).

²⁴⁰ Hartlief & Faure, *supra* note 6, at 1021.

²⁴¹ See Jos J. Van der Helm, *Tegemoetkomingregelingen na de vuurwerkramp*, 40 TIJDSCHRIFT VOOR PRIVAATRECHT [TPR] 40, for the legal

and the subsequent explosions resulted in numerous deaths, injuries, and the destruction of nearly an entire neighbourhood. The damage amounted to several hundred million euros. The compensation for damages resulting from the explosions arose as a question in the wake of the catastrophe. While a claim was filed against the liable company under tort law, it became immediately clear that the corporation could not compensate the entirety of the damage resulting from the explosion. A tort claim would therefore never lead to financial compensation of the victims. As a result, the question of whether other mechanisms could be used to compensate the victims arose again.

The explosion in Enschede clearly displays the limited ability of the WTS 1998 to provide financial compensation to victims of catastrophes. This Act was not declared applicable to the catastrophe in Enschede because the government argued that the catastrophe concerned largely insurable damage. As far as victims are concerned, one can of course think of various first party insurances that have or could have covered the losses of the victims. With respect to corporate damage, one can again think about various corporate insurances that would have covered the losses. However, although the WTS 1998 was not declared applicable, the government argued that a national catastrophes fund Stichting Nationaal Rampenfonds ("NRF") could provide some financial compensation to victims for damage which was not insured.²⁴² The latter is an interesting construction: it is in principle a private initiative and thus a privately-run fund to which the government donates funds.

In addition to providing first aid after the explosion, the community of Enschede paid funeral and other related costs. The community received a contribution from the NRF for victims who were not sufficiently insured.²⁴³ After the disaster, the community of Enschede created a commission for the financial settlement of the fireworks disaster, the Commissie Financiële Afwikkeling Vuurwerkrap (CFA). The Commission was composed of representatives from the community and province,

consequences and compensation arrangements after this catastrophe; BRUGGEMAN, *supra* note 1, at 382-85.

²⁴² See Vuurwerkrap Enschede; Brief minister, 24-05-2000, Kamerstukken II 1999-2000, 27 157, no. 1, 4-5, available at: <https://zoek.officielebekendmakingen.nl/kst-27157-1>.

²⁴³ See Vuurwerkrap Enschede; Brief minister met informatie over maatregelen die op rijksniveau zijn en worden genomen, 06-06-2000, Kamerstukken II 1999-2000, 27 157, no. 2, 17-19, available at: <https://zoek.officielebekendmakingen.nl/kst-27157-2>.

the insurers, and the NRF. The central government only acted as observer. The task of this CFA was to make an inventory of the damage and to determine to what extent some victims were underinsured.²⁴⁴ The CFA formulated proposals for additional financial compensation to the community of Enschede. This CFA proposed various arrangements for non-insured damage, which were also largely implemented. Compensation for damages of individual citizens included compensation for lost furniture, compensation for damaged cars (that were not insured) and compensation for specific costs caused by the unusual circumstances.²⁴⁵ All these heads of damage were compensated through the aforementioned NRF. The central government made a lump sum payment of 6.2 million guilders to the Fund (around EUR 2.8 million or USD 3.2 million).²⁴⁶

For corporations, a specific Fund was created to make advance payments and provide loans.²⁴⁷ Thus, the aforementioned NRF provided compensations for citizens, but companies could not seek financial assistance from the NRF. In particular, in November 2001 an arrangement for companies was negotiated specifically for damage caused by the fireworks catastrophe, consisting *inter alia*, of:²⁴⁸

- a compensation for non-insured and underinsured material damage (60% of the value with a 10% deductible);
- a compensation for non-insured and underinsured commercial losses (70% of the lost profits compared to 1999 with a deductible of 30%) under the condition that the assets of the corporation are

²⁴⁴ Vuurwerkramp Enschede; Brief met het voortgangsbericht over de ramp, 29-06-2000, Kamerstukken II 1999-2000, 27 157, no. 5, 9-10, available at: <https://zoek.officielebekendmakingen.nl/kst-27157-5>.

²⁴⁵ See Vuurwerkramp Enschede; Brief minister met het maandelijks voortgangsbericht met betrekking tot de afwikkeling van de vuurwerkramp van 13 mei 2000 te Enschede, 23-10-2000, Kamerstukken II 1999-2000, 27 157, no. 10, 5-7, available at: <https://zoek.officielebekendmakingen.nl/kst-27157-10>.

²⁴⁶ See Kamerstukken II 1999-2000, 27 157, no. 10, 5.

²⁴⁷ See Kamerstukken II 1999-2000, 27 157, no. 5, 7-8.

²⁴⁸ See Vuurwerkramp Enschede; Brief staatssecretaris over een continuïteitsregeling voor door de vuurwerkramp in Enschede gedupeerde ondernemers, 22-11-2000, Kamerstukken II 2000-2001, 27 157, no. 12, 1-2, available at: <https://zoek.officielebekendmakingen.nl/kst-27157-12>. and Vuurwerkramp Enschede; Brief minister over de afwikkeling van de vuurwerkramp in Enschede, 30-11-2000, Kamerstukken II 2000-2001, 27 157, no. 13, 4-5, available at: <https://zoek.officielebekendmakingen.nl/kst-27157-13>.

- lower than EUR 225,000;²⁴⁹
- a compensation in case of the shutdown of a company with a maximum of three times the annual profit in 1999 under the condition that the companies' own assets were lower than EUR 225,000;
- a compensation of maximum EUR 2,500 for legal, fiscal and accountancy assistance.

This consisted in total of an amount of approximately 90,000,000 guilders (around EUR 40.8 million or USD 46.4 million) which was paid by the Ministry of Economic Affairs to a foundation called Financial Aid Fireworks Catastrophe (Financiële Hulpverlening Vuurwerkrap).²⁵⁰ The government estimated that more than 90% of the companies in the disaster area could continue their enterprise in an acceptable manner with aid provided by the foundation.²⁵¹

5. "Volendam"

Shortly after the events in Enschede, the Netherlands was confronted with another major catastrophe. On New Year's Eve of 2000, a large fire took place in café De Hemel in Volendam. This fire resulted in many deaths and serious injuries. Again, the question of adequate financial compensation and the role of the government arose. In contrast to the fireworks explosion in Enschede, Volendam concerned primarily personal injury damage. The possibilities of using tort law were examined, in addition to social security payments to the victims. Although the owner of the café may be the primary individual responsible, victims looked at other potential defendants due to insolvency concerns. The owner of the café only had insurance coverage for a limited amount of the damage and, thus, victims sought recovery from other sources. Barendrecht showed that the Volendam case is typically one where multiple tortfeasors have acted together and have all contributed to the risk. Therefore, Barendrecht suggested that a division of liability should occur based on the contribution of each tortfeasor and victim to the

²⁴⁹ This limit was introduced in order to indicate that companies that can carry the damage themselves should indeed take the financial consequences themselves as well. However, in reality the large majority of the corporations was apparently below the limit. See Kamerstukken II 2000-2001, 27 157, no. 15, 10.

²⁵⁰ See Kamerstukken II 2000-2001, 27 157, no. 12, 2.

²⁵¹ See Kamerstukken II 2000-2001, 27 157, no. 13, 5.

entire risk.²⁵²

Formal law suits against public authorities did not take place, and, ultimately, a group of victims reached an agreement with the owner of the café. With the help of the community of Volendam a settlement was reached whereby the owner of the café decided to sell his café which was purchased by the community. The sum Volendam received for the real estate was then made available for victim relief via a Fund.

Other forms of support were discussed following the Volendam disaster. Again, the WTS 1998 was declared not applicable because the disaster concerned insurable damage.²⁵³ However, the government donated an amount of 3.5 million guilders (around EUR 1.6 million or USD 1.8 million) shortly after the disaster to two foundations that took care of victims with serious burns.²⁵⁴ The Dutch government explicitly stated that this payment was made as a gesture of national solidarity with the victims and not as a recognition of some kind of government liability. In addition, substantial amounts were paid by the central government. These amounts were used to reimburse the compensation costs made by the community Edam-Volendam, the compensation of costs for a specific research committee that examined the sources of the disaster, and for the compensation of various other costs.

A Committee instituted by the government formulated several advice papers concerning the financial compensation that the central government should provide for the Volendam victims. Those guidelines were also followed in practice. In those papers, many comparisons were made with the arrangement for the

²⁵² See Maurits Barendrecht, *Verdeling van verantwoordelijkheid als het fout gaat: Volendam en Aandelenlease als voorbeelden*, 79 NEDERLANDS JURISTENBLAD [NJB] 2180 (2004).

²⁵³ See *Café-brand Volendam; Lijst van vragen en antwoorden over o.a. het kabinetsstandpunt Nieuwjaarsbrand Volendam*, 01-10-2001, Kamerstukken II 2001-2002, 27 575, no. 6, 50, available at: <https://zoek.officielebekendmakingen.nl/kst-27575-6>.

²⁵⁴ These two foundations are the Nederlandse Brandwondenstichting (Netherlands Burns Foundation) and the Stichting Slachtoffers Nieuwjaarsbrand (Foundation Victims New Year's Eve Fire). See *Café-brand Volendam; Brief minister en staatssecretaris met een overzicht van de gebeurtenissen in de twee weken na de ramp*, 17-01-2001, Kamerstukken II 2000-2001, 27 575, no. 2, 8, available at: <https://zoek.officielebekendmakingen.nl/kst-27575-2>. and *Café-brand Volendam; Kabinetsstandpunt Nieuwjaarsbrand Volendam*, 18-07-2001, Kamerstukken II 2000-2001, 27 575, no. 5, 42, available at: <https://zoek.officielebekendmakingen.nl/kst-27575-5>.

victims of the fireworks factory explosion in Enschede. A suggestion was made to provide an amount of EUR 150,000 (USD 170,000) to the Volendam victims, whereas the amount provided to the Enschede victims was only EUR 120,000 (USD 136,000). The specific Committee argued that, specifically in the case of Volendam, many young victims were involved and therefore the incident damaged their future perspectives. The Committee also took into account that serious burns would lead to a very long and slow recovery process.²⁵⁵ On the basis of these proposals, the central government made a total amount of EUR 30.1 million (USD 34.2 million) available for the victims.²⁵⁶ This is remarkable since the initial intent of the central government was to merely provide compensation for direct costs. Ultimately, large amounts of ad hoc compensation were provided as well.

6. Lessons from Enschede and Volendam

A common feature of the Enschede and Volendam catastrophes was that no mandatory solvency guarantees were available. The operator of the fireworks factory in Enschede had only a voluntary liability insurance with a cover of several millions of guilders and the same applied for the owner of the café in Volendam. Consequently, the Dutch government has provided generous financial compensation both after the Enschede and the Volendam catastrophes. As mentioned, in the case of Enschede, 90 million guilders (around EUR 40.8 million or USD 46.4 million) was paid by the State; in the case of Volendam the Dutch State (the taxpayers) paid approximately 50 million guilders (around EUR 22.7 million or USD 25.8 million).²⁵⁷

7. Criticism to the WTS

It is remarkable that the statutory arrangement set forth in the WTS, which was specifically created by the legislator to compensate victims of catastrophes, has been applied merely in the case of damage due to heavy rainfall. The WTS was not of use in the case of serious man-made disasters resulting in major

²⁵⁵ See Café-brand Volendam; Brief staatssecretaris over het kabinetsbesluit naar aanleiding van het advies van de Commissie Financiële Afwikkeling II, 26-07-2002, Kamerstukken II 2001-2002, 27 575, no. 18, 1-3) available at: <https://zoek.officielebekendmakingen.nl/kst-27575-18>.

²⁵⁶ See Kamerstukken II 2002-2003, 27 157 and 27 575, no. 51, 9.

²⁵⁷ Hartlief & Faure, *supra* note 6, at 1016-17.

personal injuries, such as the aforementioned fireworks accident in Enschede in 2000 or the Volendam fire in 2000-2001.²⁵⁸ Thus, the legislator has not succeeded in its attempt to create with the WTS an exclusive arrangement for government contributions in the event of both natural and man-made catastrophes. Hence, it is not surprising that the WTS has been the subject of criticism in various literature.

The first criticism relates to the fact that the government intervenes with specific funding for victims of catastrophes on an ad hoc basis. This preference for victims of catastrophes has been criticized from the angle of the equality principle.²⁵⁹ Second, legal doctrine also holds that, if specific financial compensation needs to be provided to victims of catastrophes, it is more desirable to have a structural solution instead of the current ad hoc arrangements. In this respect, the WTS 1998, which apparently does not serve this goal, should be revised. Third, it has been stressed that there might be reasons to increase duties of potential tortfeasors to guarantee their solvency. Fourth, it seems logical to increase the possibilities of first party insurance.

To some extent those four general criticisms of the WTS are strongly related. The first criticism of the ad hoc compensation is of course related to the second criticism that a structural solution which specifies clearly ex ante the rules of the game would be better. The third criticism relates specifically to technological (man-made) disasters, to the extent that a tortfeasor can be identified (like the operator of a specific plant), imposing solvency guarantees would have a double benefit. The imposition of solvency guarantee leads to more adequate compensation to victims and at the same time guarantees better prevention, given that moral hazard is controlled. Whereas the third criticism relates to technological disasters, the fourth criticism on the lack of first party coverage relates to natural disasters. In cases where tort law can be applied (like with technological disasters), it is logical first to apply liability rules and compulsory financial security in order to correctly allocate the social costs of disasters. To the extent that (for a variety of reasons) such a cost allocation to tortfeasors is not possible (like with natural disasters) it would

²⁵⁸ Michael G. Faure & Ton Hartlief, *The Netherlands, in FINANCIAL COMPENSATION FOR VICTIMS OF CATASTROPHES: A COMPARATIVE LEGAL APPROACH*, *supra* note 1, at 195, 218-21.

²⁵⁹ AUKE R. BLOEMBERGEN, *Een schadefonds geweldsmisdrijven?*, in BLOEMBERGENS WERK 167 (1992); Jim M. Polak, *Schade en schadevergoeding bij incidentele calamiteiten: Een vervolg*, [22] NEDERLANDS JURISTENBLAD [NJB] 1093 (1977).

be logic to work out a comprehensive mandatory first party insurance scheme (similar to France and Belgium). Such a structural first party insurance scheme for natural disasters is then precisely the structural solution (required in the second point of criticism) and avoids the need for ad hoc compensation (addressed in the first point of criticism). The same applies to the third point of criticism : to the extent that adequate strict liability rules are put in place, combined with mandatory solvency guarantees, financial compensation for victims of technological disasters will equally be available. That can equally avoid ad hoc compensation, the first point of criticism, and provides the desired structural solution, the second point of criticism.

Now that the prohibited cartel agreements that do not to cover the consequences of large-scale flooding and earthquakes have been withdrawn, insurance policies covering those risks could be brought to the market. These should only come to the market, however, provided that some kind of solution for large losses is available through reinsurance and/or the government, which is so far only the case for damage due to heavy rainfall and frost. One should note, however, that, for other relevant natural hazard risks in the Netherlands (storms, lightning and hail), commercial insurance coverage is available.

8. Reforms

The government of the Netherlands has installed a body with the specific task of providing an assessment of the WTS 1998: the *Commissie Tegemoetkoming bij Rampen en Calamiteiten*, Commission for Compensation in Cases of Catastrophes and Incidents ("CTRC"). In 2001, the CTRC was asked to provide the government with advice on optimal compensation in the event of catastrophes.²⁶⁰ The CTRC examined the existing possibilities of compensation and, subsequently, formulated proposals for desirable additional compensation. Its final report, *Solidariteit met Beleid, Solidarity with Policy*, was presented to the Minister of the Interior on 7 March 2005 and consisted of three parts: a general section, two research reports on the financial settlement of disasters in the Netherlands, and the financial compensation schemes for damage caused by catastrophes in some other countries. The CTRC

²⁶⁰ Vuurwerkrapport Enschede; Brief minister met de halfjaarlijkse voortgangsrapportage Vuurwerkrapport, 18-10-2001, *Kamerstukken II* 27 157, no. 44, 4, available at: <https://zoek.officielebekendmakingen.nl/kst-27157-44>.

brought to the fore multiple interesting suggestions regarding financial compensation for victims of catastrophes in the Netherlands, including the following:

- Tort law needs to be the primary mechanism for compensating catastrophic damage;
- Judicial liability procedures should be shortened and simplified by means of a new act on the collective settlement of mass damage;²⁶¹
- Insolvency guarantees for injurers need to be introduced or increased;
- For catastrophes where no liable injurer can be identified, the CTRC suggests increased use of first party insurance. The proposal is designed not to make the purchase of disaster coverage mandatory (as in France), but to facilitate the insurability of risks by letting the State act as reinsurer (if necessary) and pursuing an active information policy;
- Change the WTS into a national solidarity fund that would, on the basis of clear rules and structures, provide various types of compensation, including for uninsurable damage.

Most of the Commission's proposals are in line with what has been suggested in legal doctrine. As far as the revision of financial compensation of victims of catastrophes is concerned, the former Minister of the Interior wrote on 5 June 2006 a letter to parliament outlining the position of the government on the reform proposals of the CTRC.²⁶² In that letter, the former Minister of the Interior noted the government's desire to achieve

²⁶¹ See *Wijziging van het Burgerlijk Wetboek en het Wetboek van Burgerlijke Rechtsvordering teneinde de collectieve afwikkeling van massaschades te vergemakkelijken* [*Wet collectieve afwikkeling massaschade*] [Act on the Amendments of the Civil Code and the Code of Civil Legal Procedure in order to facilitate class action], June 23, 2005, Stcrt. 2005, 340, as amended by *Wet tot wijziging van het Burgerlijk Wetboek, het Wetboek van Burgerlijke Rechtsvordering en de Faillissementswet teneinde de collectieve afwikkeling van massavorderingen verder te vergemakkelijken* [*Wet tot wijziging van de Wet collectieve afwikkeling massaschade*] [Act amending the Act on collective settlement of mass damage], June 26, 2013, Stb. 2013, 255 (Neth.).

²⁶² Beleidsplan Crisisbeheersing 2004-2007; Brief minister bij aanbieding kabinetsstandpunt over het eindrapport van de Commissie tegemoetkomingen bij rampen en calamiteiten (CTRC), 17-07-2006, *Kamerstukken II* 2006-2007, 29 668, no. 11, available at: <https://zoek.officielebekendmakingen.nl/kst-29668-11>.

a few fundamental changes on the following basis²⁶³:

- A provision of guarantees or insurance should be made compulsory in cases where a liable injurer can be identified;
- Insurance coverage by potential victims has to be stimulated in instances where a liable injurer cannot be identified; and
- The current legislative basis for compensation of victims of catastrophes has to be changed to address the current ad hoc solutions.

The government was therefore strongly suggesting the development of voluntary first party insurance without prescribing a straightforward duty for potential victims to purchase insurance coverage, comparable to the model that exists in France. In the event that insufficient capacity makes the risk hard to insure, the State could act as reinsurer. The general idea behind this new policy is that there would be less pressure on the public budget, but responsibility would be shifted either to the industry for technological disasters or to potential victims for natural catastrophes.

Further, in 2012 WRR published a report in which it argues that it is important to provide incentives to all stakeholders involved for the prevention of disasters.²⁶⁴ The report stresses the need to create structural solutions for when the damage would occur, but also to create effective incentives to control risks, prevent incidents, and mitigate damages.²⁶⁵ The WRR rightly argues that many corporations are currently not intrinsically motivated to take responsibility with a view on preventing incidents. Similar to the proceeding recommendation from the CTRC, the WRR therefore recommends that solvency guarantees should be introduced for potential injurers.

Thus, the messages of the CTRC and the WRR are similar. The amounts provided by the insurance market today are too low, and insufficient amounts are available without

²⁶³ A summary of these proposals can be found in Faure & Hartlief, *supra* n. 1, 341-342 and Bruggeman, *supra* n. 1, 390-393.

²⁶⁴ WETENSCHAPPELIJKE RAAD VOOR HET REGERINGSBELEID, EVENWICHTSKUNST. OVER DE VERDELING VAN VERANTWOORDELIJKHEID VOOR FYSIEKE VEILIGHEID (NOV. 28, 2011), http://www.wrr.nl/fileadmin/nl/projecten/evenwichtskunst/2011-12-06__Evenwichtskunst_volledige_publicatie.pdf.

²⁶⁵ See Marjolein van Asselt & Karin Ammerlaan, *Schadevoorziening als perspectief: vernieuwing van het denken over verantwoordelijkheid voor fysieke veiligheid*, [56] OVERHEID & AANSPRAKELIJKHEID [OA] 100 (2012) for details of the advice of the WRR.

intervention by the government. For that reason, both reports point at the important role of the government and insurers in the provision of adequate compensation.

The cases of Volendam and Enschede painfully illustrated that the bill for the technological disasters is still paid by the taxpayer, rather than by liable injurers and their liability insurers.²⁶⁶

C. Nuclear Accidents

The Netherlands ratified the 1960 Paris Convention and the 1963 Brussels Convention on 28 September 1979 through the Act of 17 March 1979.²⁶⁷ The 1979 Act came into effect on 28 December 1979, bringing both conventions into force on that date in the Netherlands. On that same date, the Nuclear Incidents (Third Party Liability) Act of 1979 which set forth the regulations governing nuclear third party liability in the Netherlands also came into force.²⁶⁸ On 1 August 1991, an Act amending the 1979 Nuclear Incidents (Third Party Liability) Act came into effect, implementing the Paris and Brussels Protocols.²⁶⁹ Simultaneously, another Act amending the 1979 Act on Third Party Liability in implementation of the Joint Protocol was passed by Parliament.²⁷⁰ This Act came into effect on 27 April 1992. Further, on 30 October 2008 Parliament approved a bill to ratify the 2004 Protocols to the Paris Convention and to the Brussels Supplementary Convention. A bill to amend the Nuclear Incidents (Third Party Liability) Act was also approved.

The limitations on the scope of the Paris Convention do not apply to the liability of an operator of a nuclear installation on Dutch territory, for certain kinds of damage. This is particularly the case for damage (a) suffered on the territory of a State party to the Convention wherever the incident occurred; (b) suffered on the territory of a State not party to the Paris Convention, but party to the Joint Protocol, as a result of an

²⁶⁶ *E.g.*, Hartlief & Faure, *supra* note 6, at 1026.

²⁶⁷ Art. 3 Goedkeuringswet Verdrag inzake wettelijke aansprakelijkheid op het gebied van de kernenergie [Approval Act Convention on Third Party Liability in the Field of Nuclear Energy], Mar. 17, 1979, Stb. 1979, 160.

²⁶⁸ Wet van 17 maart 1979, houdende regelen inzake aansprakelijkheid voor schade door kernongevallen [Wet aansprakelijkheid kernongevallen] [Act on liability for nuclear accidents], Mar. 17, 1979, Stb. 1979, 225.

²⁶⁹ Modification of the Act on liability for nuclear accidents [Act amending the Nuclear Incidents Act], Aug. 1, 1991, Stb. 1991, 369 (Neth.).

²⁷⁰ Modification of the Act on liability for nuclear accidents [Act amending the Nuclear Incidents Act], Apr. 27, 1992, Stb. 1991, 373 (Neth.).

incident in the territory of a State party to the Joint Protocol; or (c) wherever suffered, as a result of an accident on Dutch territory (Art. 15(1)). The operator is also not exonerated from paying financial compensation for damage caused by an incident due directly to a grave natural disaster (Art. 3).

The maximum liability of the operator under the Paris Convention has been raised to EUR 1.2 billion (USD 1.4 billion) (Art. 5(1)). Under Article 5(3), a lower amount may be set by ministerial order for low-risk installations. If, in the opinion of the Minister of Finance, an operator of a nuclear installation cannot obtain the financial security required by the Paris Convention, the minister may enter into contracts on behalf of the State as insurer or provide other state guarantees up to the operator's liability limit. This possibility also exists if financial security is only available at an unreasonable cost. In so far as the funds available from the operator's financial security are insufficient to compensate for the damage, the State shall make available funds up to the operator's maximum liability. In such cases, the minister is entitled to exercise the operator's rights of recourse (Art. 10).

If the amount of damage caused by a nuclear incident on Dutch territory exceeds the limit of the Brussels Convention, the government will make available supplementary funds up to a maximum total of EUR 2.27 billion (USD 2.58 billion) (Art. 18(1)). Under Article 18(4), these public funds will also be made available for damage suffered in the territory of parties to the Brussels Convention on condition of reciprocity.

D. Terrorism

1. Material Damage

The Dutch government and the Dutch Association of Insurers agreed to set up a dedicated reinsurance company, the Dutch Terrorism Risk Reinsurance Company, *Nederlandse Herverzekeringsmaatschappij voor Terrorismeschaden N.V.* ("NHT"), to provide insurance against terrorist acts in all areas of business. This step represented an intervention measure to address a market failure to supply terrorism risk coverage.

Since 1 July 2003,²⁷¹ more than 185 insurance companies (95% of all active Dutch insurers), the government, and some

²⁷¹ The NHT became operational on 1 July 2003. It has been periodically extended for additional periods and is expected to be further extended as long as market conditions require.

reinsurance companies participate in the NHT. Every insurance company which does business in the Netherlands, and which is permitted to do business, can become a member of the NHT (with the exception of insurance companies providing nuclear cover). The participating insurance companies cede all their terrorism exposure to the NHT pool, which acts as a reinsurance company. The pool then assumes 100% of the terrorism liability for all individual and SME insurance policies. The NHT provides coverage for non-life insurance (for property located in the Netherlands), life insurance (where the policyholder has a regular residence in the Netherlands), healthcare insurance, and funeral insurance.

The NHT will provide reinsurance coverage for terrorism, malevolent contamination or precautionary measures or any conduct in preparation for terrorism. The NHT decides whether a particular event should be considered as a consequence of the manifestation of the terrorism risk. Terrorism is defined as:

any violent act and/or conduct – committed outside the scope of one of the six forms of acts of war as referred to in Article 3:38 of the Financial Supervision Act (*Wet op het Financieel toezicht*) – in the form of an attack or a series of attacks connected together in time and intention as a result whereof injury and/or impairment of health, whether resulting in death or not, and/or loss of or damage to property arises or any economic interest is otherwise impaired, in which case it is likely that said attack or series – whether or not in any organisational context – has been planned and/or carried out with a view to effect certain political and/or religious and/or ideological purposes.

The overall capacity of the terrorism risk reinsurance pool is limited to EUR 1 billion (USD 1.1 billion) per calendar year. In the event of a severe terrorist attack, the limit of EUR 1 billion a year may not be sufficient. If EUR 1 billion per year is not sufficient, the compensation to all members will be decreased. There are four layers of coverage:

- EUR 300 million (USD 341 million) in the aggregate (pooled cover provided by the primary insurers);
- EUR 100 million (USD 114 million) in the aggregate in excess of the EUR 300 million provided by international reinsurers;
- EUR 550 million (USD 623 million) in the

- aggregate in excess of the EUR 400 million provided by international reinsurers;
- EUR 50 million (USD 57 million) in annual aggregate excess of EUR 950 million provided by the Dutch government.²⁷²

The first layer applies a threshold deductible, which means that insurers bear the risk to EUR 7.5 million (USD 8.5 million). The deductible does not apply to life insurance or health insurance.

On an annual basis, the members pay their share of the reinsurance premium and the operational cost of the NHT. The individual share is a proportional figure of the market share (gross premium income the Netherlands) of a member company.²⁷³ The Dutch government charges a premium at a level intended to price itself out of the market when terrorism risk insurability is restored. From the period of 1 July 2003 until 31 December 2003, the government charged a premium of EUR 10 million (i.e. EUR 20 million on a yearly basis or USD 23 million).²⁷⁴ A system of descending premiums is used for increasing coverage. For example, the first part of coverage is relatively expensive – coverage of EUR 100 million demands the same premium as the next increment of EUR 200 million. Thus, an incentive is incorporated into the system in order to stimulate the recovery of commercial insurance. Pursuant to the incentive, individual reinsurers that are capable of covering the risk obtain the ability to offer coverage for a lower premium. This point of departure seemed to pay off, since a commercial reinsurer declared itself willing to cover the first EUR 100 million of

²⁷² The initial agreement was that the Dutch State would fully share its stake in the NHT decrease. For that reason, it was agreed that the premium of the State would be slightly higher than that of the reinsurers to make it attractive for reinsurers at a lower level premium risk of the State. This has worked to the extent that, in 2005, the share of the State decreased to EUR 100 million and, in 2006, to EUR 50 million. Thereafter, the reinsurers indicated that they wished to continue the participation of the State, because, after a major terrorist attack, the insurers and State must anyway carefully coordinate their activities and communication and because the involvement of the State would be highly appreciated. At the end of 2006, the Minister of Finance informed the insurers of its consent to this continuation. To date, state participation has been continued in this way.

²⁷³ INT'L FORUM FOR TERRORISM RISK (RE)INS. POOLS, *supra* note 148.

²⁷⁴ Terrorismeverzekering; Brief minister over de Nederlandse Herverzekeringsmaatschappij voor Terrorismeschaden N.V. (NHT), 01-07-2003, *Kamerstukken II* 2002-2003, 28 668, no. 2, 23 June 2003, available at: <https://zoek.officiëlebeelden.nl/kst-28668-2>.

governmental coverage (namely between EUR 700 and 800 million). Governmental intervention is hence delayed until the EUR 200 million threshold.²⁷⁵

In sum, the NHT is, like in the other European countries, a private enterprise in which a large number of insurance companies participate and a multi-layered approach is provided.²⁷⁶ The main advantage of this model is that a total capacity of the pool up to EUR 1 billion can be provided. A strong point is equally that a risk premium is charged by the government which subsequently has stimulated insurers to develop alternatives themselves.²⁷⁷ Some have criticized the NHT, arguing that the State should not intervene to provide reinsurance. They argue that it would have been better to provide this structural solution by applying the WTS 1998 to the terrorism risk as well.²⁷⁸

Given the recent terrorist attacks in Europe, there are currently discussions about the aggregate limit of the NHT, specifically whether the current limit is sufficient.²⁷⁹

2. Personal Injury

Apart from the NHT, the Compensation Fund for Victims of Violent Crime, *Schadefonds Geweldmisdrijven* was institutionalized as early as 1976, and offers a payment to everyone who has suffered injuries or serious material and immaterial losses due to an intentional violent crime committed on Dutch territory.²⁸⁰ The Compensation Fund is a supplementary compensation mechanism. As such, the Compensation Fund only awards financial compensation when it is clear that the victim

²⁷⁵ Wijziging van de Noodwet financieel verkeer in verband met de dekking van het terrorismerisico door verzekeraars; Nota n.a.v. het verslag, 14-08-2003, *Kamerstukken II* 2002-2003, 28 915, no. 5, 3, available at: <https://zoek.officielebekendmakingen.nl/kst-28915-5>.

²⁷⁶ Faure & Hartlief, *supra* note 258, at 206.

²⁷⁷ See BRUGGEMAN, *supra* note 1, at 375-81.

²⁷⁸ See, e.g., Karin Ammerlaan & Willem H. van Boom, *De Nederlandse Herverzekeringsmaatschappij voor Terrorismeschaden en de rol van de overheid bij het vergoeden van terreurschade*, [45/46] *NEDERLANDS JURISTENBLAD [NJB]* 2330 (2003).

²⁷⁹ INT'L FORUM FOR TERRORISM RISK (RE)INS. POOLS, *supra* note 148, at 30.

²⁸⁰ Wet van 26 juni 1975, houdende voorlopige regeling schadefonds geweldsmisdrijven [Wet schadefonds geweldsmisdrijven] [Act on provisional regulation of the damage fund for violent crimes], June 26, 1975, Stb. 1975, 382 (Neth.).

cannot be reimbursed in any other way. Therefore, the Fund, which is financed through the general public budget, acts as a safety net.

E. Summary

According to the general Dutch perspective, financial compensation to victims of natural catastrophes and man-made disasters needs to be provided by the general means. This point of view is evidenced by Article 21 of the Dutch Constitution, which enforces a duty towards the government to provide the habitability of the country. The acceptance of the consequences of this duty leads to the principle of mutual solidarity between the Dutch population.

This has to a large extent also been reflected in the developments in the Netherlands with respect to the financial compensation for victims of disasters. Of all the countries studied in this Article, the Netherlands has probably devoted most resources to discussing victim compensation, to no avail. The Netherlands does not really know a structural solution to guarantee financial compensation to victims of natural disasters. The Act, WTS 1998, that was supposed to serve this goal has not been able to provide adequate compensation to victims and has for that reason been subject to criticism and reform proposals which have not yet led to a legislative change. The inadequacy of WTS 1998 was especially shown at the occasion of an explosion in a fireworks factory in Enschede and a fire in a café in Volendam. In both cases WTS 1998 could not be applied, but generous compensation was paid by the Dutch State. A major problem, however, was that in both cases compulsory financial guarantees did not apply and the (voluntarily concluded) liability insurance of the operators provided too low amounts of compensation. It is for that reason not surprising that the reform proposals have gone in the direction of providing mandatory financial security by operators. As far as the cover for terrorism is concerned, the Netherlands has been one of the first countries to develop (like the other countries discussed so far) a terrorism risk insurance pool ("NHT") which provides a total cover of EUR 1 billion via a multi-layered approach with a reduced intervention by the Dutch State.

VI. A CRITICAL COMPARISON

A. Starting Points and Methodology

The introduction explicitly stated that this comparative exercise was undertaken to see where the legislation in Belgium, France, and Germany with respect to financial compensation for victims of disasters deviates from the situation in the Netherlands. In this section we will provide a critical comparison of the situation in the four countries. In order to undertake this comparison, we will take the economic starting points that we formulated in the introduction as a baseline. Six starting points had, from an economic perspective, to be followed in order 1) to guarantee an adequate financial compensation to victims ex post and 2) to provide effective incentives for disaster risk reduction ex ante. These principles will constitute the background for the comparison that we will undertake in this section. We will thereby follow the same order and therefore address the same types of catastrophes as we did throughout the study. We will therefore look at the regulation of natural disasters (B), technological disasters (C), nuclear disasters (D) and terrorism (E). An important limitation of our study is that we did not attempt to provide full details on the situation in every country for all aspects of those disasters. We could for example obtain information on the activities to which compulsory financial guarantees apply for some countries, but not for all. That limitation on the scope of the research inevitably also limits the scope of the comparison. Still, we believe that it provides a fairly good opportunity to sketch to what extent the financial compensation in the particular countries studied is adequate with respect to the four specific types of disasters taking into account the need for adequate ex post compensation and providing ex ante incentives for disaster risk reduction.

Our benchmark for the comparison is the adequacy of the financial compensation for the victims and the effectiveness of the incentives for disaster risk reduction. Obviously other benchmarks could be used as well and to some extent we alluded to those in this article. For example, some countries, like Belgium, worked out specific compensation mechanisms not only aimed at adequate compensation of the victims, but also at speedy compensation. Speed may be an important criterion to judge the adequacy of the financial compensation mechanism for the simple reason that the length of the procedure could increase the suffering of the victims, and therefore the non-pecuniary losses.

In addition, a (too) long procedure could lead to secondary losses and for example to bankruptcies simply because a livelihood and therefore the source of income of a victim has been destroyed (think of an example where a café or restaurant has been put out of business as a result of an oil spill on a nearby beach). The lack of speedy compensation could in those cases make the losses even larger. It is for that reason that in some cases (especially when referring to technological disasters) we addressed mechanisms in legal systems that strive for the speedy compensation of victims. We do not, however, have full information on the way in which this is arranged in the four legal systems examined, and it is for that reason that we do not use that as a specific proxy in our comparison. The reader should, however, be aware that the speed of providing the financial compensation can be an important element both in judging the adequacy of the compensation to victims, but also in assessing the effectiveness of the incentives for disaster risk reduction. It may also be clear that the longer the procedure takes, the more the *ex ante* incentives for disaster risk reduction might be diluted. Speed in the financial compensation is therefore of importance both in the adequacy of the financial compensation and the effectiveness of the incentives for disaster risk reduction.

In the introduction, we equally made clear that we do not distinguish between the several heads of damages as it would make our study needlessly complex. We noticed, however, especially with terrorism, but also with some other catastrophes that there is a difference in the compensation mechanisms. Some pertain, for example, with property damage and material losses while other involve personal injury. There is some kind of a paradox there: from a policy perspective, personal injury plays stronger to the imagination and, therefore, compensation mechanisms will often provide generous compensation for personal injury at a relatively low threshold. The focus may not be directly on property damage, although arrangements to cover property damage have, as the overview showed, in many countries also been worked out (especially in the case of terrorism). The paradox is that, although the public attention and compensation mechanisms may often strongly focus on personal injury, the largest magnitude of losses is often related to property damage rather than personal injury. But the specific consequences of those differences also remain further undiscussed in this comparison.

In order to go beyond a country comparison for the specific disasters, we will also try to provide a more general view

on how the specific countries are doing as far as providing financial compensation to victims of disasters is concerned in a more holistic manner. Jordan, Würzel, and Zito developed a methodology to judge the adequacy of the use of new instruments for environmental governance in a variety of countries. The authors qualify particular countries as “leaders, followers and laggards”.²⁸¹ Although our field of research is obviously different from the field of Jordan, Würzel, and Zito, who focus on new policy instruments in environmental governance, we believe that their methodology is interesting to provide an integrated perspective in order to assess the adequacy of the financial compensation of victims of disasters in specific countries (F). We equally examine whether it is possible to find explanations for some of the differences we observed (G), and we analyze to what extent the existing frameworks were able to deal with some of the recent disasters (H). Finally, we speculate on the extent to which important reforms may be expected in the domains that we examined (I).

B. Natural Disasters

In the introduction, it was mentioned that ex post ad hoc government compensation will not provide effective ex ante incentives for prevention. It was equally mentioned that insurance is better able to provide those ex ante incentives. Further, it was also commented that the supply of catastrophe cover could be stimulated through the government by acting as reinsurer of last resort. How are these three particular requirements followed in the four countries under discussion as far as the financial compensation for victims of natural disasters is concerned?

Addressing the first aspect, whether the particular country provides ex post ad hoc compensation which would negatively affect incentives, the situation in Belgium is complex: there was a Disaster Fund, but this was structural rather than ad hoc. Moreover, this Disaster Fund does not provide full compensation as a result of which the negative effects on ex ante disaster risk

²⁸¹ NEW INSTRUMENTS OF ENVIRONMENTAL GOVERNANCE (Andrew Jordan, Rüdiger K.W. Würzel & Anthony R. Zito eds., 2003); Andrew Jordan, Rüdiger K.W. Würzel & Anthony R. Zito, *The rise of “new” policy instruments in comparative perspective: has governance eclipsed government?*, 53 POL. STUD. 477 (2005); RÜDIGER K.W. WÜRZEL, ANTHONY R. ZITO & ANDREW JORDAN, ENVIRONMENTAL GOVERNANCE IN EUROPE, A COMPARATIVE ANALYSIS OF NEW ENVIRONMENTAL POLICY INSTRUMENTS (2013).

reduction were probably not that problematic. Since the statutes of 2003 and 2005, the role of the Disaster Fund has even been further reduced. Belgium has now moved to a system of mandatory insurance; the Disaster Fund only intervenes where the mandatory insurance does not apply and only in cases where the disaster has been recognized as such by the government. France does not, in principle, have ad hoc ex post compensation since coverage is provided via mandatory insurance. Germany provides generous ex post compensation from the public purse.²⁸² The WTS 1998 in the Netherlands is meant to provide structural ex post compensation for victims of disasters, largely in the same way as the Belgian Disaster Fund. But the WTS does not apply to natural disasters that can be considered "insurable". It has been applied to cases of heavy rain. From this brief overview, the French system appears to have the best approach because mandatory insurance in France avoids the public purse.

The second aspect of the comparison concerns whether there is comprehensive mandatory insurance cover for natural disasters. Belgium followed the French model by introducing mandatory additional cover in addition to the voluntary concluded housing insurance. Legislative interventions in Belgium led to mandatory insurance coverage for those natural disasters that fall within the scope of the statute. Germany tried to introduce a similar model in 2004, but the model was rejected for political reasons. There was a similar outcome in the Netherlands: notwithstanding many attempts and advices by a variety of commissions, there is as yet no mandatory coverage for natural disasters. The mere availability of voluntary insurance for natural disasters, more particularly flooding to which the Netherlands is heavily exposed, is still problematic. Again, France comes out best, quickly followed by Belgium which mirrored the French example.

The third aspect of comparison relates to the government playing a role as reinsurer of last resort in order to stimulate the supply of catastrophe insurance. The comparison turns out largely in the same way as mandatory insurance: the Belgian (now: Regional) Disaster Fund(s) still intervenes for amounts of damage which are higher than the upper limit of the mandatory insurance cover. It looks similar to the French model, where the *Caisse Centrale de Réassurance* ("CCR") provides unlimited reinsurance, de facto financed by the French State. There is a difference though between the two models: in Belgium for

²⁸² See *supra* Section IV. A.

amounts higher than the insurance limit the (structural) Disaster Fund intervenes. This intervention does not seem to be incentive-based. In the French CCR-model the intervention of the State for amounts higher than the compensation provided by insurers is not directed to victims. Instead, such amounts are directed to the CCR and indirectly to the insurers. In that sense, it could be argued that the French model still stimulates the insurability of natural disasters by facilitating the supply of catastrophe cover. The intervention of the CCR, however, has also been criticized for basically providing reinsurance for free and therefore not being market-based either. Thus, it is doubtful whether there are major differences between the Belgian and French model of state intervention for amounts beyond the amounts provided by insurance cover. As there is no mandatory insurance mechanism for natural disasters in Germany or the Netherlands, those countries do not have a particular role for the government as reinsurer of last resort in this particular domain. Again, France seems to come out best, followed by Belgium.

C. Technological Disasters

The requirements for an adequate financial compensation of victims of technological disasters are rather different because there is a potential injurer who can be held to compensate the damage; thus, national legislation should try to provide effective incentives for disaster risk reduction to that particular operator. There are, however, particular aspects in the design of liability rules which are of importance in order to allow liability rules to fulfil their incentive effect. Given the fact that operators usually have better information than the judge on the optimal technologies to prevent technological disasters, and given the difficulties in proving a fault for potential victims, a strict liability rule would provide better incentives than a fault-based or negligence regime. Liability rules, however, can only function effectively if guarantees are provided that the injurer will also have money at stake to compensate the victims. Since technological disasters can easily cause damages of which the magnitude can be substantially higher than the injurer's wealth, it is important to introduce guarantees against this insolvency risk. Finally, access to justice for potential victims may be problematic especially in cases involving a large number of victims. Procedural difficulties and long delays in deciding the tort case can be expected. That is not only problematic from the perspective of victim compensation (in cases where victims have

to wait many years for damage compensation), but also from the perspective of incentives (when tortfeasors only are forced to compensate many years after the incident they may have gone out of business, thus potentially diluting the incentive effect of liability rules). Therefore, it may be of importance to have systems in place allowing a rapid compensation of victims in the event technological disasters occur.

Regarding strict liability, no substantial differences between the countries examined are detected. All systems have, to a lesser or larger extent, introduced strict liabilities for technological disasters. In some cases, this is based on an extensive interpretation of old tort law provisions in civil codes; in other cases special statutes have introduced strict liabilities. Some of those strict liabilities were the result of the implementation of international treaties, such as for marine oil pollution or nuclear accidents or even European Directives such as in the case of product liability and environmental liability. In the latter case, there is unsurprisingly a large convergence and not much difference between the systems.²⁸³ Many legal systems have, moreover, accompanied the introduction of strict liabilities with mandatory solvency guarantees. Although the limited scope of this study did not allow us to examine the full extent of solvency guarantees, there seem to be a few striking differences. Belgium and France seem to have a relatively large amount of activities for which solvency guarantees apply. In the Netherlands, there seems to be a larger reluctance against the introduction of mandatory solvency guarantees. The dramatic cases of Enschede and Volendam²⁸⁴ are typical in that respect: there was a serious insolvency problem precisely because the limited amount of voluntary insurance purchased by the operators was insufficient to cover the damage. It is therefore not surprising that the many reform committees that studied the financial compensation for victims of technological disasters all recommended to introduce or increase mandatory solvency guarantees.

Some legal systems equally have specific procedures allowing rapid compensation to victims of technological disasters. One of the more recent statutory changes is probably the Belgian legislation of 2011 which provides possibilities for victims to

²⁸³ See UNIFICATION OF TORT LAW: STRICT LIABILITY (Bernhard A. Koch & Helmut Koziol eds., 2002) for a comparative account of strict liability in a variety of legal systems.

²⁸⁴ See *supra* Section V. B. 6.

obtain low threshold speedy compensation based on a prepayment by insurance companies.²⁸⁵ France has a rather peculiar Act of 2003, which introduced mandatory first party insurance for technological disasters to be financed by victims. From the perspective of providing effective incentives for prevention to operators it is remarkable that the French legislator chose for a mandatory first party construction in the case of technological disasters, rather than for mandatory solvency guarantees for operators. France, therefore, does not provide an example in line with the general starting points mentioned in the introduction. Germany and the Netherlands have specific procedures allowing victims to claim a limited amount of damages, but the procedures are rather general provisions in procedural law and not tailored towards victims of technological disasters like in the case of Belgium and France.²⁸⁶

D. Nuclear

When discussing nuclear accidents in Belgium, the general framework was discussed in a detailed manner.²⁸⁷ It was made clear that most of the international nuclear liability Conventions are based on a strict liability. In addition, the Conventions are characterized by a limited liability of the operator, mandatory financial security and financial compensation in addition to the liability of the operator, to be financed by the State and by all Contracting Parties. These features of the international nuclear liability regime have been critically reviewed in the economic literature. The strict liability and the mandatory solvency guarantees are obviously viewed as positive since they may lead to optimal incentives *ex ante* for disaster risk reduction. However, the limitation on liability is problematic since it may insufficiently expose operators to liability and could result in victims being undercompensated. Also, the fact that the State rather than the operator provides a substantial amount of compensation is problematic to the extent that this *de facto* leads to a subsidy for the nuclear industry.

Although all countries have based their system on the same international Conventions there are important differences between the countries examined, as is also made clear in

²⁸⁵ See *supra* Section II. B. 3.

²⁸⁶ As we mentioned in the introduction to this section, as we lack full information on specific procedures aiming at rapid compensation for victims, we are not able to provide a full assessment on this point.

²⁸⁷ See *supra* II. C. 1.

overviews provided by the Nuclear Energy Agency of the OECD.²⁸⁸ These differences could relate to: 1) the total amount of financial compensation available to victims; 2) the question whether the operator is sufficiently exposed to liability; and 3) whether it is the State rather than the operators who provide the compensation. The differences can be summarized in the following table:

Table 3: Nuclear Operator's Third Party Liability Amounts and Financial Security Limits

Country	Operator's liability amount	Funds available		
		Financial security limit to cover operator's liability amount	Public funds	International funds (established under either the BSC or the CSC)
Belgium	EUR 1.2 billion	EUR 1.2 billion		SDR 125 million
France	EUR 700 million	EUR 700 million ²⁸⁹	After depletion of the operator's liability amount up to SDR 175 million	SDR 125 million
Germany	Unlimited	EUR 2.5 billion	EUR 2.5 billion ²⁹⁰	SDR 125 million
The Netherlands	EUR 1.2 billion	EUR 1.2 billion	After depletion of the operator's liability amount up to EUR 2.3	SDR 125 million

²⁸⁸ See OECD NUCLEAR ENERGY AGENCY, NUCLEAR OPERATORS' THIRD PARTY LIABILITY AMOUNTS AND FINANCIAL SECURITY LIMITS (Apr. 2018), <http://www.oecd-nea.org/law/table-liability-coverage-limits.pdf>.

²⁸⁹ This amount will only be applicable when the Protocol to the Paris Convention will enter into force.

²⁹⁰ The public funds come into play when the damages are not covered by private financial security or when claims cannot be paid out of such security.

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Looking at Table 3, several of the questions mentioned above can be answered. First, addressing the question of the total funds available there appear some similarities and some differences. German law is the most generous of the countries examined because it has financial security available up to EUR 2.5 billion (USD 2.8 billion). Belgium and the Netherlands are similar in that they have a financial security limit for the operator of EUR 1.2 billion (USD 1.4 billion) and in addition international funds up to SDR 125 million (EUR 153 million or USD 174 million). Additionally, the Netherlands has public funds available up to EUR 2.3 billion (USD 2.6 billion); however, such funds are only available following the depletion of the operator’s liability. The country which has most nuclear power plants in Europe, France, is strikingly the least generous by only having a limit for the operator of EUR 700 million (USD 797 million), public funds of SDR 175 million (EUR 214 million or USD 244 million) and international funds of SDR 125 million.

Ultimately, it is clear that even the “best” country does not have sufficient funds available to cover the costs of an average nuclear accident. Looking not only at estimates of the costs of nuclear accidents, but also at the real costs, more particularly of the Fukushima incident, it is clear that they amount more in the direction of USD 80 billion and higher. This clearly shows serious undercompensation of victims.

A related consideration is obviously whether the operator is fully exposed to liability. Again, the situation is probably the worst in France where the operator, Electricité de France (“EDF”), is exposed to the lowest amount of EUR 700 million. Belgium and the Netherlands already do a lot better with an operator liability of EUR 1.2 billion and a financial security to be provided for the same amount. But the “best” is undoubtedly Germany, which has both the principal position of having unlimited operator liability and financial security of up to EUR 2.5 billion.

The results are therefore the same when concerning the question of whether it is the operator or rather the State who takes financial responsibility. Germany comes out best as at least EUR 2.5 billion is financed by operators. France comes out worst as only EUR 700 million is financed by the operator. Belgium and the Netherlands are in between since EUR 1.2 billion is financed by the operator. The Netherlands is, however, problematic as after the depletion of the operator’s liability,

public funds are made available up to EUR 2.3 billion. Note that in comparison, Germany makes an amount available of EUR 2.5 billion, but paid by the operators.

E. Terrorism

As far as terrorism is concerned, there are probably less differences between the countries as they all have installed multi-layered systems, including an intervention by the State as reinsurer. Although all the countries in this study have pool constructions, however, there are substantial differences between the countries as far as the total amounts available are concerned and related to the financing. Belgium and the Netherlands both have pool constructions for a total of EUR 1 billion. The French system of GAREAT provides a total of EUR 2.52 billion. However, France does not have a limit. The highest layer consists of an "unlimited protection" provided by the CCR and backed up by a guarantee provided by the French State. Germany provides an amount of a total of EUR 10 billion. There are also substantial differences as to where the division between insurers/reinsurers and the State is concerned. Here, the Netherlands does remarkably well as only EUR 50 million out of the total EUR 1 billion limit is paid by the State. Germany is at the other extreme where from the total of EUR 10 billion, EUR 7.5 billion is compensated by the State. In Belgium of the total of EUR 1 billion, EUR 300 million is paid by the State, and in France the CCR again provides unlimited reinsurance in excess of the amount of EUR 2.52 billion.

F. Leaders, Followers, and Laggards

If one would do an attempt to summarize the previous comparison using the framework of Würzel, Zito and Jordan, this would provide the following picture:

Table 4: Leaders, Followers, and Laggards²⁹¹

Disaster compensation mechanism		Leader	Follower	Laggard
Natural disasters	Ad hoc	France	Belgium	Netherlands, Germany
	First party insurance	France	Belgium	Netherlands, Germany
	Government or market	France	Belgium	Netherlands, Germany
Nuclear	Amount	Germany	Belgium, Netherlands	France
	Operator exposed	Germany	Belgium, Netherlands	France
	Government subsidy	Germany	Belgium	France, Netherlands
Terrorism	Amount	France	Germany	Netherlands, Belgium
	Market or state	Netherlands, Germany	Belgium	France

Source: Adapted from Würzel, Zito and Jordan (2013) with updates.

To be clear: when referring here to the leader, we usually took the country that is doing best as far as the financial mechanism is concerned in view of the economic principles. When referring to the laggard, we took the country that does worst. The followers were always in the middle, but not necessarily countries that followed examples from others.

As far as the natural disasters are concerned, France comes out best on all accounts due to its mandatory first party insurance. There is in principle no ad hoc ex post government compensation and, therefore, also no government intervention. Because Belgium has followed the French model, it is also considered a follower on all accounts. The Netherlands and Germany are the same in the sense that they do not have mandatory first party insurance cover, but still largely rely on ex post ad hoc compensation and, thus, on government intervention.

As far as the nuclear disasters are concerned, Germany comes out best on all accounts. In Germany, the total amounts of compensation are very high, and there is an exposure of the nuclear operators to unlimited liability and a mandatory

²⁹¹ We have not included technological disasters in this table as we had insufficient information to make a clear distinction between the countries in this respect.

provision of EUR 2.5 billion. The danger of state subsidy in Germany is therefore relatively reduced. Belgium and the Netherlands can be considered followers as far as the total amounts are concerned, which are comparable. However, the subsidy aspect in the Netherlands is more problematic than in Belgium as in the Netherlands still up to an amount of EUR 2.3 billion public funds are made available after depletion of the operator's liability of EUR 1.2 billion, which is not the case in Belgium. With respect to the nuclear risk, France does worst on all accounts. In France, there is only an exposure to liability of the operator of EUR 700 million (the lowest in all countries reviewed). Therefore, there is an insufficient exposure of the operator to liability. In addition, there is also compensation via public funds, which produces a subsidy effect. The total amount of financial compensation for the nuclear risk in France is also low.

With respect to terrorism, France comes out best when examining total amounts because there is, in principle, an unlimited provision of funds via the CCR. Germany is next with a EUR 10 billion amount. The amounts are substantially less in Belgium and the Netherlands, both with EUR 1 billion. As a result, both Belgium and the Netherlands qualified as laggards. However, when addressing whether it is the market or rather the State that provides the amount, the Netherlands comes out best. Of the total amount of EUR 1 billion, only EUR 50 million is provided by the State in the Netherlands; moreover, the Dutch State is charging a premium for this intervention. The state intervention in Belgium is relatively limited at an amount of EUR 300 million out of a total of EUR 1 billion. The state intervention in France is of course huge as it provides unlimited cover via the CCR. In Germany, a last layer of compensation in the amount of EUR 7.5 billion is provided by the State. 12.5% of the premiums collected by Extremus must be paid to the State for this guarantee. Therefore, it is positive that this layer provided by the State does not merely consist of a subsidy.

The interesting aspect of this table is that there is in fact no country that comes out best on all accounts. France may come out high as far as the financial compensation for victims of natural disasters is concerned, and Germany may come out high for nuclear incidents. But France came out quite bad as far as the nuclear accidents are concerned, and Belgium usually ends up in the middle of the countries examined. It is striking, however, that in many cases the Netherlands ends up as a laggard, except for the fact that it provides a limited government subsidy for a

compensation of the terrorism risk for which it equally charges a premium.

G. Explaining the Differences?

The methodology we just applied allows for some indication of the leaders, followers, and laggards. Indeed, also the overview we provided, analysing the financial compensation of victims of disasters in the four countries showed remarkable differences. Of course, it would be interesting to go beyond the mere comparison and to ask the question of whether explanations can be provided for the different attitudes in the various countries. It is striking, not only that some countries (like France) are very rapid to introduce mandatory comprehensive insurance for natural disasters, whereas others (Germany and the Netherlands) are more reluctant to follow that path. But it is also striking that following particular disasters (such as Fukushima) some countries are very quick in reacting and, for example, adapting amounts of compensation for victims of nuclear accidents (like Germany) whereas others are much lower or do not react at all (France). One can only speculate about the sources for those differences. To some extent it may be related to the differences in compensation culture in the various countries we have examined. We already provided for that reason in the summary of each country some more general observations on how victimisation is viewed in the particular country and whether the country is for example rather relying on individual autonomy or on solidarity. We do not have the possibility to examine potential sources for those differences based on those varying legal cultures. However, some interesting indications in that respect have been provided in the literature. In an interesting study, Van Dam has used Hofstede's framework for analysing cultural differences²⁹² to explain the cultural differences between the tort law systems in Europe.²⁹³ Using Hofstede's criteria to explain cultural differences, such as: power distance, uncertainty avoidance, individualism versus collectivism, and masculinity versus femininity, Van Dam explains that the cultural differences between the countries. For example, in the United Kingdom individualism ranks higher than in France or Germany, where collectivism is more important. That explains, according to him,

²⁹² GEERT HOFSTEDÉ, *CULTURE'S CONSEQUENCES* (2nd ed., 2001).

²⁹³ Cees van Dam, *European Tort Law and the Many Cultures of Europe*, in *PRIVATE LAW AND THE MANY CULTURES OF EUROPE* 57 (Thomas Wilhelmsson, Elina Paunio & Annika Pohjolainen eds., 2007).

particular differences between the features of tort law in the three countries.²⁹⁴ It would undoubtedly be interesting to apply such an analysis based on cultural differences in order to analyze whether that could explain some of the differences in attitudes we have observed in this study.

However, in particular cases, the differences observed might not be directly related to differing preferences or cultural differences. It is well-known that industrial pressure groups play an important role in shaping legislation in general,²⁹⁵ and in shaping tort law in particular.²⁹⁶ In other words, powerful interest groups, mostly those related to industry, may play an important role in the shaping of the legislation with respect to the financial compensation of victims of catastrophes. That may explain why in particular countries (for example, the Netherlands) there is opposition against a more wide-spread use of obligations for operators to show financial security. And politicians clearly have their own preferences as well. Recall that politicians can often gain from providing ex post compensation to victims of disasters.²⁹⁷ This is seen, for example in Germany, where politicians oppose the introduction of structural solutions like mandatory compulsory insurance. Structural solutions would remove their possibility to obtain political gains from awarding financial compensation ad hoc to specific victims. As the German case study showed,²⁹⁸ political resistance explained why a proposal to introduce mandatory insurance for natural disasters was not accepted in Germany. Some of the differences observed between the legal systems are therefore not only related to different compensation cultures, but also to the various lobbying efforts by interest groups and to the corresponding reactions by politicians.

H. Recent Evolutions

We started this article by referring to an earlier study from 2006 that had reviewed compensation systems in the four

²⁹⁴ *Id.* at 64-75.

²⁹⁵ See JAMES M. BUCHANAN & GORDON TULLOCK, *THE CALCULUS OF CONSENT* (1962).

²⁹⁶ See Michael G. Faure & Roger Van den Bergh, *Liability for Nuclear Accidents in Belgium from an Interest Group Perspective*, 10 INT'L REV. L. & ECON. 241 (1990), for an example how nuclear liability legislation in Belgium has been shaped by private interests.

²⁹⁷ Depoorter, *supra* note 166.

²⁹⁸ See *supra* Section IV. A.

countries²⁹⁹ which we took as a basis for our case studies. However, we equally indicated that since that period a lot has happened: not only have further proposals for legislative changes taken place; the countries examined have also experienced many disasters. In fact, with the exception of nuclear accidents, all of the other disasters examined (natural, technological, and terrorism) have hit one or more of the countries examined. It is for that reason that we also examined to what extent the compensation mechanisms put in place were used to compensate the victims. In that respect, it is striking that the discussion of those recent disasters showed that in various ways (and in some countries more criticized than in others) financial compensation to the victims has been provided. In some cases that took place on the basis of existing legislation; in others, new legislation was created or ad hoc interventions took place in order to provide compensation.

Belgium could apply its Terrorism Act of 1 April 2007 and the pool solution TRIP to the terrorist attack on the Brussels airport. France could apply the mandatory insurance for natural disasters, with reinsurance via the CCR, to cover the losses related to the 2016 flooding. France could also use the compensation mechanism for personal injury to compensate the victims of the terrorist attacks in both Paris and Nice. The same was true in Germany where government compensation was provided to deal with the personal injury from the victims of the 2016 Berlin terrorist attack. As Germany has no structural solution, both the 2013 and the 2017 floodings were compensated on an ad hoc basis. That could therefore lead to the conclusion that all countries dealt in some way or another with the financial losses of the victims, also in those recent disasters. However, that should obviously not lead to the conclusion that the compensation in the countries examined would therefore be adequate. In many cases (especially in Germany) there was criticism on the speed and adequacy of the compensation. Moreover, as we made clear, providing adequate compensation to victims is only one criterion to judge a financial compensation system; the other question is to what extent the compensation mechanism also provides effective incentives for disaster risk reduction *ex ante*, to the extent that that is possible at all. In that respect, there are still remarkable differences between the countries, and politicians generally still seem to show a strong tendency to provide ad hoc compensation when there is a large public pressure, like in the case of terrorism.

²⁹⁹ Faure & Hartlief, *supra* note 1.

I. Looking into the Future

An interesting question is of course also to what extent this critical comparison of the countries provides any indication of how countries would deal with (perhaps also other) disasters in the future. Of course, observations in this domain are largely speculative, but based on what has happened in the past, a few speculations could be made: as far as natural disasters are concerned, it is unlikely that major changes will take place in France and Belgium for the simple reason that structural solutions have been put in place and are generally considered as satisfactory. Germany attempted to introduce compulsory disaster insurance, but the attempt failed. It is not very likely that a similar attempt will be undertaken again in the near future. In the Netherlands, the financial compensation for victims of natural disasters has led to many debates between the stakeholders, policy documents and reports, but not yet to any concrete legislative proposal for reform. However, it is likely that, *inter alia* as a result of climate change, the Netherlands will be more vulnerable to particular natural disasters, especially those related to water such as seawater levels rising, heavy rainfall, and flooding. It is not unlikely that when another of those would (again) hit the Netherlands in the future, the question of insurance to cover those risks would rise again. The question of introducing a similar structural solution as Belgium and France would also see the light again.

As far as technological disasters are concerned, it is not likely that large changes will occur in the short run in Belgium and France. In the Netherlands, it is likely that the debate will be reopened on the currently large lack of compulsory financial securities for operators of hazardous activities. There may be strong political opposition against increased duties in that respect, but the current externalisation of harm to society by operators will most likely no longer be felt as acceptable, more particularly when another large technological disaster would occur.

The area where the influence of the major interest groups, more particularly licensees of nuclear power plants and generally electricity producers, has been large is undoubtedly related to the liability for nuclear accidents. Not only has the nuclear lobby been able to create very favourable conventions with low limits on liability; even after Chernobyl it took more than 10 years to adapt the international Conventions and more than 30 years after Chernobyl, most of those adapted Conventions and Protocols have not even entered into force yet. The international arena,

more particularly the Nuclear Energy Agency from the OECD, does not even have serious proposals on the table to reform the international Conventions towards a real internalisation of the externalities caused by the nuclear risk, even post Fukushima. Given the apparent complete capturing of the NEA by the nuclear lobby it is not to be expected that at the international arena much will change in the near future. That may, however, be different at the national level. Even before Fukushima, Germany showed to be quite progressive with higher amounts of compensation (compared to the nuclear Conventions) and with the reduction of the state subsidies. Interestingly this led to the creation of a risk-sharing agreement between the nuclear power plant operators in Germany. Not surprisingly the country in Europe that is lagging behind in this respect is exactly the one where 50% of all Europe's nuclear plants are located, France. It shows the lowest liability for the nuclear operator and a large amount of state intervention.³⁰⁰ In general one can, however, expect that Member States at the national level would follow the German example. Following the German example implies that, as a result of public pressure and green lobbyism, some countries may decide to deviate from the international regime which is largely favourable to the nuclear industry. Deviating countries may for example decide to increase limits on liability or even, following the German example, transition to unlimited liability.

Terrorism is one domain that likely will not experience much change in the near future. The simple reason is that post 9/11 all four legal systems already put in place terrorism pools to deal with terrorism-related property damage. As far as personal injury is concerned, most of the countries examined already had compensation funds in place for victims of violent acts which could also benefit victims of terrorism. The recent attacks in France, Germany, and Belgium have moreover shown that the systems that were put in place were able to provide adequate compensation to victims. For that reason, it is not very likely that large changes could be expected in the near future in that domain.

VII. FINAL THOUGHTS

We started this article by examining whether, from a Dutch perspective, there are possibilities to improve the current

³⁰⁰ Although there is *de facto* not that much difference, as the nuclear operator (Electricité de France) is state-owned as well.

system for a financial compensation for victims of disasters. Our examination inquired as to whether higher amounts of compensation can be provided and whether the system can be structured in such a manner that also effective incentives for disaster risk reduction are provided.

An interesting lesson from the critical comparison provided in the previous section is that countries can benefit from mutual learning. There are indeed substantial differences. Differences relate not only to varying approaches between the countries, but also between the different domains (technological, natural, nuclear and terrorism). It was also striking to see that there is no country that is, in the view of the economic starting points, doing perfect on all accounts. As just mentioned, France may be doing well as far as the financial compensation for victims of natural disasters is concerned, but certainly not in the area of the nuclear risk. However, it was also striking that for many domains the Netherlands seems to be running behind the neighbouring countries. That therefore provides an important scope for improvement and learning for the Netherlands. In fact, as we have also clearly indicated when discussing the Dutch case,³⁰¹ there have already been many studies that came to a large extent to the same conclusions as this report with respect to the necessary reforms of the system in the Netherlands. They can easily be summarized as follows: as far as the natural disasters are concerned, there is a strong case to be made in the Netherlands to follow the French/Belgian example and therefore to introduce comprehensive mandatory insurance for particular natural disasters, specifically for flooding. As far as technological disasters are concerned, the dramatic cases of Volendam and Enschede clearly showed that the Netherlands should make much more use of mandatory solvency guarantees. That was already the recommendation in previous reports, including reports from the WRR, and is equally the conclusion from this study.

The reason why efficient solutions are not introduced is often related to politics and more particularly effective lobbying by interest groups or lacking political rewards. Depoorter (2006) showed convincingly that politicians receive too little reward for investments in ex ante prevention and can largely benefit from ex post compensation. That is why there will often be systematic underinvestment in ex ante disaster risk reduction and overcompensation ex post. That this is not only a theoretical issue

³⁰¹ See *supra* Sections V. A. 4, V. B. 8.

was well demonstrated when reviewing the attempt to introduce comprehensive mandatory insurance for natural disasters in Germany: politicians did not want to lose the power to receive political rewards by providing ex post compensation and did not want to expose households to the payment of premiums in a time of financial crisis.³⁰² Notwithstanding these political difficulties, which have undoubtedly played an important role in the Netherlands as well, it still remains important to point at the dangers and weaknesses of the current system: not only will insufficient compensation be available when yet another flooding or Enschede/Volendam-type of technological disaster occurs; it equally leads to systematic underinvestments in ex ante disaster risk reduction.

One problem when facing catastrophes is that some may argue that when a disaster happens, the damage will be so huge that it is not possible to provide any type of ex ante compensation mechanism that would reasonably be able to deal with such catastrophe. Ultimately it will be the government (and therefore the tax payer) that has to pay. That (wrong) argument is then often used to justify any lack of action with respect to a structural solution for the financial compensation of victims of disasters. The argument is wrong for the obvious reason that disasters come in varying degrees. Not all disasters are of such a magnitude that it would be impossible to provide compensation via market solutions like insurance. Moreover, even when the real amount of a catastrophe is higher than insurable amounts, a partially structural solution to compensate for example EUR 10-20 billion would still have the benefit of reducing the amount for which additional financing would have to be sought. The most important point is that ignoring catastrophes because of this fatalistic perspective (there is nothing we can do anyway) also reduces disaster preparedness and effective investments in disaster risk reduction. It remains therefore important to work out a structural solution even when one has to realize that that solution may adequately deal with some but not necessarily with the most dramatic disasters. The experience with the French/Belgian model for dealing with natural disasters shows that it is possible to work out a structural solution (using market insurance and an intervention by the State as reinsurer of last resort) that is able to deal with most if not all natural disasters.

Of course, an important limit of our study consists of the fact that we addressed only four types of disasters (natural,

³⁰² See *supra* Section IV. A.

technological, nuclear and terrorism). We did not pay attention to specific types of technological disasters that could potentially lead to catastrophic losses. One could think of a major failure of energy systems, related to or independent from cyber attacks or, more generally, the huge economic losses and societal disruptions that could follow from cyber attacks. As we already made clear in the introduction, cyber attacks show particular idiosyncrasies which make them different from any of the catastrophes we have discussed so far. Moreover, as we also made clear, not every cyber attack is necessarily a disaster although it may be regarded as such in a financial sense. Some of the mechanisms that were put in place to deal with the disasters that we have discussed in this report (like insurance) are also available to deal with cyber attacks.³⁰³ Moreover, some alternatives (like the risk-sharing agreements used in the nuclear sector in Germany) have recently also been proposed as a potential remedy for cyber security related risks.³⁰⁴ A major difference, however, between the disasters that were studied in this report and cyber attacks is that (so far) the losses resulting from cyber attacks have not yet been catastrophic (which does not mean that it could potentially not be the case). Differently than with the disasters studied in this report, the question also arises whether a cyber attack necessarily leads to a demand for financial compensation. An element which makes the cyber risk different is that there is especially a demand for information sharing, for risk reduction and for damage mitigation. Those often require also a collaboration, but not necessarily the type of financial compensation for the types of disasters we have studied in this report. Cyber security risks should therefore undoubtedly be subject to further research in another study.

Even though we limited this article to study the four specific types of disasters, the principles and solutions worked out in this article could be of relevance to other catastrophic lessons as well. The major lesson from this and many other studies devoted to this topic is always clear: working out *ex ante* a structural solution to deal with the financial compensation after a disaster has occurred is always better (in view of both prevention and compensation) than an *ad hoc ex post* solution. The old saying remains true: prevention is always better than cure.

³⁰³ See, e.g., Christian Biener, Martin B. Eling & Jan Hendrik Wirfs, *Insurability of Cyber Risk: An Empirical Analysis*, 40 GENEVA PAPERS ON RISK AND INS. 131 (2015).

³⁰⁴ Faure & Nieuwesteeg, *supra* note 8.